

AMATEUR RADIO

VOL 52, No 4, APRIL 1984

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA



SPECIAL-Lift-out Log Sheet to get you started
on Intruder Warching

"Betsy" Flies Home

FSK for the FT-101Z

Construction Details for DC Receiver

An Accurate Capacitance Bridge to Build

Satellite Tracking — Part 3

Mod for FT-290R

Novice Sample Exam Paper

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Fleur Diamond tests dad's DC Receiver. Turn to page 10 for the concluding episode of Drew's High Performance Direct Conversion Receiver with full construction details.



AMATEUR RADIO

Published monthly as the official journal by the Wireless Institute of Australia, founded 1910. ISSN 0002 — 6859.
Registered Office: 3/105 Hawthorn Road, Caulfield North, Vic. 3161. Telephone: (03) 528 5962.

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DEADLINE

All copy for June AR must arrive at PO Box 300, Caulfield South, Vic 3162 or the latest by midday 26th April 1984. Please remember that Easter and Anzac holidays immediately precede this date, so please allow time in the postage system.

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Tel.: (03) 560 2222.

Typesetting by: QUADRICOLOR INDUSTRIES PTY LTD.
22-24 Glenvale Crescent, Mulgrave, 3170.
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Photographic film and processing material courtesy
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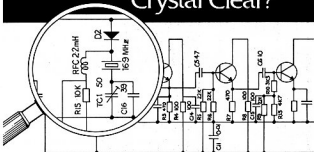


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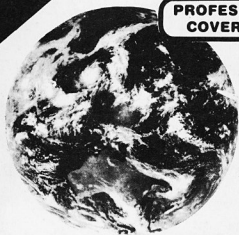
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 - b) 380-514 MHz 1.0uV S/N 12 dB
 - AM a) 26-180 MHz 1.0uV S/N 12 dB
 - b) 380-514 MHz 2.0uV S/N 12 dB
- **Selectivity:** FM More than 60 dB at — 25 kHz
AM More than 60 dB at — 10kHz
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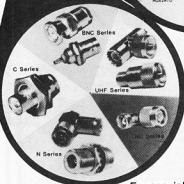
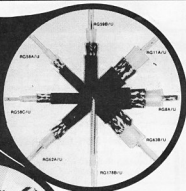
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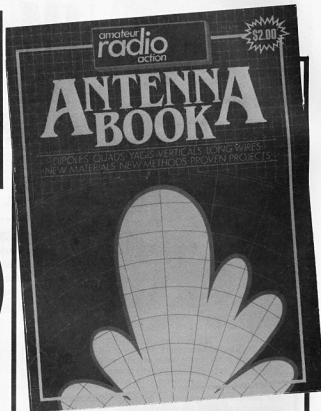
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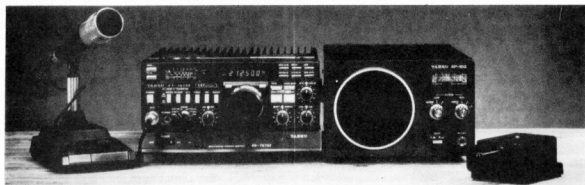
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a word from your EDITOR

April is an eventful month with Easter and the Federal Convention of the WIA.

The higher bands get a kick from the autumn equinox before we settle into the winter months. Maybe a new country or some rare DX will highlight the Easter break for you, or maybe just the chance to talk to old friends will help you enjoy the few days break.

The Federal Convention will shape the future course of the Institute. Many new and old policies will be considered and discussed.

On a more personal level, with the year well started, we should be well into our own projects. Maybe they are computer orientated or just in the field of traditional amateur radio. Perhaps you have discovered little known bands and techniques.

Remember to communicate with your fellow amateur by means of an article in *Amateur Radio*. Both the grand and the simple projects have a place in our magazine.

For the old hands remember how you started out and think of the questions and advice you have given and received. Write up your gadgets, aeriels and other items which, whilst so simple to you, are a whole new world to a newcomer.

The big returns in amateur radio come from what we do and achieve. The fancy store bought box is nice but a big thrill lies in what can be achieved with equipment we have built. Both have a place in amateur radio.

Operating skills are very important. They must be learnt and practised. The ability to achieve a lot with limited resources is a hard won ability.

When you make some advance in amateur radio remember to communicate. Amateur Radio is about communication — so write an article for *Amateur Radio*.

AR



DO YOU KNOW ...

That although not an accredited country for DXCC there are twenty one listed amateurs in Transkei S8?

How many amateur licences have been issued in Japan?

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WIA NEWS

LORD HOWE ISLAND

The Department of Communications after discussions with the institute at the meeting of the 22nd February advised that it has accepted the institute recommendation and allocated the prefix VK9L to Lord Howe Island, effective almost immediately.

AR

NEW EXAM DATES

After recent discussions between representatives of the Department and the Institute concerning the introduction of more frequent amateur examinations, DOC confirm that, commencing from the May 1984 scheduled examinations, all subjects for each class of amateur certificate will be available on a three monthly basis. Subjects may be contested at Departmental venues on the third Tuesday in February, May, August and November each year. Should the number of candidates who wish to contest the examinations exceed available accommodation, it may be necessary to arrange for some candidates to contest the telegraphy component of the examinations on the following day.

Many are aware that AOCIP and AOLCP candidates, who reside more than 80 kilometres from a Departmental examination venue, are able to contest examinations at some local post offices. Australia Post has been approached concerning the increase in frequency of examinations and it is anticipated that this service will be extended to include these additional examinations.

It should be noted that a common closing date, the eighth day of the month preceding the examinations, will apply for all subjects. The Department will make information leaflets available shortly which will detail the new arrangements. These will be provided to all candidates. Should any candidate require additional information, this may be obtained from the State Manager, Radio Frequency Management Division, in the relevant State.

AR

CONVENTION 84

As members are no doubt aware by now, the annual convention of the Wireless Institute of Australia will be taking place in Melbourne over the weekend 28th, 29th, 30th April. Your representatives at the convention, Federal Councillors and their Alternates will be discussing and voting many items that will have effects upon the amateur radio hobby. Some items of major interest that will be discussed are given below.

MOVED BY VKI:

Motion (84.09.2): That the Executive are instructed to commence planning for the consolidation of all Department of Communications central office functions in Canberra, and to report to the 1985 annual convention on progress made. In particular, special attention should be paid to the relocation of the Operations Branch of the Radio Frequency Management Division, and the establishment and maintenance of an effective liaison, both formal and informal, with all areas of the Department.

Motion (84.09.3): That the WIA dissolve any remaining Amateur Advisory Committees, and inform the Department of Communications that the WIA no longer requires any formal liaison with the Department regarding reporting amateurs in breach of the regulations. Furthermore, that the WIA adopts a policy of effective self-regulation, and encourage that any suspected breaches of regulations by amateurs are handled at an amicable, individual level by all amateurs, without recourse to a body acting in conjunction with the Department.

Motion (84.09.4): That the draft policy statement on Narrow Band Modes, other than CW, be discussed.

Motion (84.09.5): That a working party consisting of FTAC and interested Divisions by established during the course of the Convention to discuss, inter alia, repeater allocations.

Motion (84.09.6): That the WIA adopts the IARU Region III policy on Intruder Watch.

Motion (84.09.7): That the Executive take action to have the 50 cm ATV band allocated to amateurs on a permanent basis.

Motion (84.09.13): That the question of HF beacons and CW practice beacons be discussed.

MOVED BY VK2:

Motion (84.09.12): Federal Executive to apply to the Board of Directors of the Confederation of Australian Sport to be admitted as an Associate Member.

Motion (84.13.3): The WIA to organise an Annual Contest limited to "CW" operation only.

MOVED BY VK3:

Motion (84.12.1): The Institute actively encourages the use of the AX special prefix and any other special prefix or callign only by stations who intend to acknowledge contacts with a QSL card bearing the callign.

Motion (84.14.1): A definitive history of the Wireless Institute of Australia be written by the end of 1985.

Motion (84.10.1): The Institute adopt for its 75th Anniversary and forever more one wings emblem closer to the roots of the organisation such as appears on the 1980 Australian callbook cover and the majority of WIA certificates.

Motion (84.09.8): The IARU be approached to fully explore the feasibility of 50 Baud replacing the 45.45 Baud standard amateur speed for RTTY.

Motion (84.14.2): A survey of members on the content of the Institute's journal "Amateur Radio" magazine and the Australian callbook be conducted in 1984.

The Department of Communications be asked to re-name certificates of proficiency and the Handbook to delete use of the word "operator".

The Institute thoroughly investigate through the IARU the possibility of SSB Upper Sideband being the recommended sideband on all bands by the year 1988.

A special award be created for the Institute's 75th Anniversary.

That the initials WICEN be changed to stand for "Wireless Institute Communications Emergency Network".

A narrow band or spot frequency in the Low Frequency part of the spectrum be sought for the Amateur Radio Service in Australia.

The Institute organise activity days/periods for the WARC bands and also introduce an award certificate for WARC band operation.

MOVED BY VK5:

Motion (84.08.1): The possibility of VK8 becoming an autonomous Division be discussed.

Motion (84.09.14): The WIA discuss and agree upon a general policy statement relating to Amateur Television.

Motion (84.09.15): The WIA negotiate with DOC to allow the use of Frequency Modulated Fast-Scan TV on all frequencies above 1240 MHz.

Motion (84.09.16): The Executive should pursue strongly the matter of Third Party Traffic using the following criteria:

- 1) All countries with whom the USA has TP agreements.
- 2) All countries in which Australian Service Personnel are stationed.
- 3) The United Kingdom.

Motion (84.13.4): That the scoring of the Remembrance Day Contest be reviewed.

Motion (84.13.5): The Federal Contest Manager be required to give adequate publicity and warnings of changes to contest rules.

Motion (84.13.6): The allocation of dates for Australian Contests throughout the year, be reviewed.

Motion (84.12.3): That the WIA formulate a code of operation or set of standards for Repeater Cross-Linking (of any mode) which will provide a better service to users without compromising present operation.

Motion (84.12.4): Based on the success of the Cross-Linking

experiment between VKSRTV and VK5RCN, the WIA negotiate with DOC to allow Cross-Linking between repeaters according to standards agreed upon with the WIA (see previous AI).

Further agenda items are expected in the run up to the convention, but members can see that to date we have a very varied list. Consider each item carefully and if you feel that you have points to make, ensure that your Federal Councillor is made aware of them.

AR



QSP



NARROW BAND MODES

At the 1983 Annual Convention a motion was passed that the world "Telegraphy" in the Institute Band Plans should be replaced by the phrase "NARROW BAND MODES". This followed a VK5 Division Agenda Item which sought greater acceptance of frequencies for RTTY as another form of telegraphy along with CW.

This has raised considerable controversy and the subject is far from being finalised. It will be discussed again at the 1984 Convention. The most fruitful discussion requires that all participants both Federal Councillors and Executive should

be fully aware of the member's feelings. If you — the CW or RTTY operator — have any thoughts on this subject, now is the time to make sure that your Federal Councillor knows of it. So far the RTTY supporters have been well organised and are clear as to what they want; they are entitled to something. If we are to sub-divide the bands further we must be fair to all users.

So let us know what you feel about it.

W RICE, VK1ABP

AR

The recent Broadcast-World Administrative Radio Conference (WARC) held in Geneva, Switzerland decided Amplitude Modulation used by shortwave broadcasters should be replaced with Single Side Band.

About 575 delegates from 115 countries attended the five-week long WARC and considered a number of matters affecting HF broadcasting.

An Australian delegate, John McKendry, head of the Department of Communications planning and development branch, said the switch to SSB was in recognition of overcrowding on the broadcast bands.

from using SSB now — particularly if the transmission is beamed to an area such as Europe where SSB receivers are popular.

However it would be some time before AM-only receivers were replaced in many areas, including China which has a huge listening audience tuned to Radio Australia.

It was understood Japanese delegates at the WARC were confident cheap mass produced SSB receivers could be made, and no doubt after 1986 when the transition period is decided these will be marketed.

Another item discussed by the WARC delegates was the call by developing countries

exclusive 7 MHz amateur band on the claimed reason of being unable to get a clear 40 metre broadcast band channel.

It seems the removal of these broadcast intruders hinges on the issue of guaranteed access for all countries to the spectrum.

Some delegates expressed concern about jamming on the HF broadcast bands which comes about by broadcasters scrambling to get their signals through or to prevent the transmission of another country being heard.

As deliberate jamming occurs those jammed are forced to use higher power and higher gain antennas, and to dodge the

SHORTWAVE BROADCASTERS DECIDE TO GO SSB

Jim Linton VK3PC,
4 Ansett Crescent, Forest Hill, Vic 3131

The use of the narrower mode SSB would increase the number of broadcast channels.

He said while the mode change was agreed, it was thought a twenty year transition period was necessary to allow a greater use of SSB receivers, particularly in some of the developing nations, and so transmitters did not have to be replaced before the end of their working life.

Mr McKendry said there was considerable discussion on when the transition period should begin — decision on this was adjourned to the second session of the WARC in 1986.

There was nothing preventing broadcasters

for equal access to the spectrum — in other words a slice of the broadcasting bands now dominated by the giants of broadcasting.

This difficult area has many unresolved problems, and what is emerging is the concept of guaranteed access to the spectrum for all countries for their minimum requirements — to service their listening audience areas.

There could be a fixed plan where every country is guaranteed some minimum number of channels for a target listening area.

Those involved in the Intruder Watch Service will know Radio Peking (and possibly others) had taken up frequencies in the

jammers more than one channel is used for the same programme.

This vicious circle produces more jamming, overcrowding, and the higher power results in splatter and sometimes spurious emissions.

HF spectrum management also suffers because spurious emissions from both the higher power broadcasters and jammers appear outside the broadcast bands.

Jamming is a difficult area because of the politics involved and despite some strong comments made on the matter before the WARC it was played down during the actual conference.

AR

HIGH PERFORMANCE DIRECT CONVERSION RECEIVER

CONSTRUCTION

The prototype receiver is housed in a home-made aluminium case measuring 105 mm H x 205 mm W x 205 mm D. There are several ready-made cases available, and one just smaller or much larger may be used. Experience has shown that it is good practice to house the power supply and perhaps also the speaker in a separate enclosure. The power supply for the prototype was mounted in the above-chassis area as shown, with the central chassis pan located 40 mm from the bottom and a shield between the power supply and frequency generator on the top side and the audio components underneath. However, this arrangement, although convenient, resulted in a small amount of residual hum in the output. This is attributed to induction of 50 Hz components into the product detector area. So the decision to use a separate or integral power supply must be left to the individual. The same applies to the speaker. It may be accommodated in the receiver case — perhaps in the lid. Microphony problems may occur, and a separate speaker enclosure would give a cleaner sound. Perhaps intending constructors could consider placing the power supply and speaker in a case which is uniform with that which houses the receiver. If this is done, both conductors for the speaker should be run to the voice coil from the receiver and a separate pair of conductors to supply the +12 V and ground return to avoid any loop problems.

All components except those of the audio section are soldered to the copper (etched) side of double sided circuit boards, so holes are not required for the components on these boards. Because of the relative complexity of the audio board, its components are accommodated on the epoxy side of a conventional single sided board, which was professionally made. Please send a large SASE to the author for a copy of the artwork and location diagrams for the home-made double sided boards. Also indicate whether you wish to make the audio board or buy the professionally made one, drilled or undrilled. The cost of the first board to the author was \$9. It is hoped that this may be reduced with a bulk order. If that is so, you will receive change.

POWER SUPPLY

The power supply is conventional. The type 2155 power transformer is available from many sources. Shop around, as it is possible to find them on special from time to time. Just about any 1A diodes — or a bridge with a PIV of greater than 400 V will do for the rectifier bridge. This is a good reserve for voltage spikes. C81 and C82 may be ceramic or polyester etc. They are an attempt to suppress spikes and switching noise from the rectifier bridge. Regulator ICs U14 and U15 should be

heatsunk to the receiver or power supply chassis. C84-C87 should be disc ceramic or monobloc. They prevent the regulators from going into high frequency oscillation, and should be soldered to the IC pins with minimum lead length. The supply may be used to power external equipment, or the receiver may be powered from an external source via the external connector. If the wrong polarity is accidentally applied, D16 conducts so protecting the receiver, and hopefully the user is warned of the error. The receiver will operate from less than +9 V to +14 V, and draws about 300 mA.

AUDIO BOARD

All the components for this board should be easily obtainable. LM308s may be used instead of LM301s. So too may LM741s, but they are slightly noisier. If 741s are used the 33 pF compensation capacitors must be omitted. Tantalum capacitors should be used where indicated, as they have less leakage current than ordinary electrolytics. The voltage ratings indicated are meant only as a guide, but greater than 16 V for all is a fair margin.

When the board has been loaded, and component locations and polarities checked, an 8 ohm speaker and 12 V supply may be hooked up. With the AF gain control R83 fully CW, there should be just a slight hiss and perhaps a tiny amount of hum from the speaker. If a small screwdriver blade is touched on to the input at C49 or C50, a fairly loud hum should be heard, indicating that the audio board is probably working properly. Those with test gear may wish to test the board more fully at this point. It must be remembered that it is a differential input, and the circuit may oscillate if just one input is excited. A small high impedance transformer may be interposed to convert a single ended source to a balanced one. All the S-meter components may be omitted if this feature is not required.

FREQUENCY GENERATOR BOARD

The VFO, dividers and buffers are accommodated on the copper (etched) side of a home made double sided board. The opposite side forms a ground plane. Coil L3 (and those for the RF input BPFs) must have a layer of shellac or clear nail varnish applied to the winding. L4 is a radio frequency choke (RFC), and may be bought ready made. Bifilar transmission line transformers T3 (and T1) are made as follows: Take two 30 cm lengths of 24 B&S enamelled wire. Lay them parallel to each other, twist their ends together, and fix one end of the pair in a vice. Fix the other ends in the chuck of a hand drill. Keeping the wires taut; turn the drill until there are about three twists per cm. Carefully thread the pair

through a Neosid 4327/2/F25 toroidal core until there are about thirteen loops. Leave about 2 cm at each end, and remove about one cm of enamel from the ends. Use a multimeter on ohms to identify the windings. It is essential that the end of one winding is connected to the start of the other winding. The dots on the schematic indicate the start of each winding. It is actually incorrect to refer to them as "windings" but it serves our purpose in this application.

In the interest of frequency stability, styrofoam or polystyrene capacitors should be used where indicated. Of course, silver mica capacitors may be used if obtainable. Trimmer capacitor C21 should be an air dielectric type, such as a "beehive". When the board has been loaded and physically checked, variable capacitor C20 and S1C may be hawired into circuit and operation checked. If an oscilloscope is available, it should be possible to see a greater than 1 V p-p signal at the generator output. A counter may be applied here to check frequencies. Operation of the electronic switch may be checked also. An electronic frequency select switch is necessary. If S1C actually carried the signal that it switches, proximity with the contacts that switch the input BPF would cause overloading problems.

PRODUCT DETECTOR/RF AMPLIFIER BOARD

This board is also home made and double sided like the previous one. Trifilar transformer T2 is made in a similar manner to T1 and T3. It is important that the start of one winding is connected to the end of another winding to form the secondary.

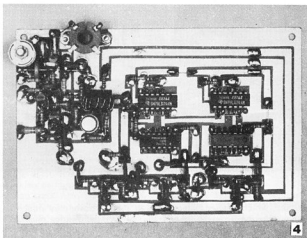
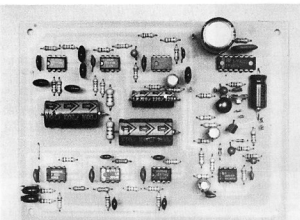
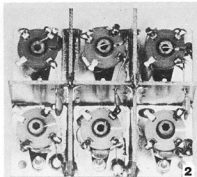
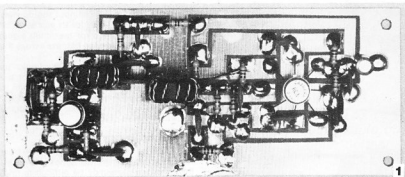
With this and the previous boards complete it will be possible, if desired, to hawire the assemblies together and check operation. With no RF BPF in circuit, an antenna connected to the input of the RF amplifier should yield a mess of signals.

INPUT BAND-PASS FILTERS

These are assembled on a piece of double sided board measuring 6 x 7 cm with shields of 2.5 cm in height dividing each coil. The top coupling capacitors of each filter pass through a small hole in the shield. A 3 cm piece of elastic from which the cotton has been removed should be inserted with each slug so that they do not move after adjustment.

DIAL

The dial must be chosen to suit the needs of the individual. There are one or two ready made dials still available, but they have become rather expensive. It is perhaps cheaper to make one like that used in the prototype. The photo shows a 6:1 planetary drive mounted on a right angled bracket, and connected to the variable capacitor via an

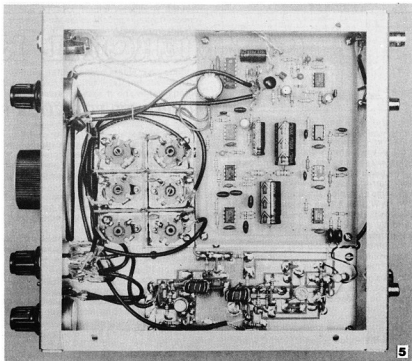


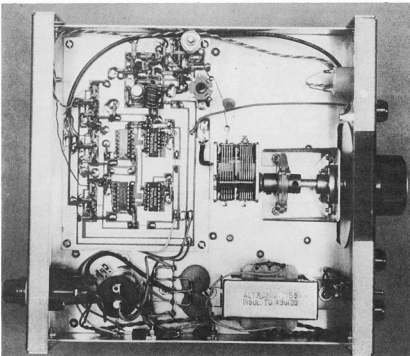
1 Input RF Amplifier and Product Detector. 2 Input Band Pass Filter Assembly. 3 Audio Board. 4 Frequency Generator Board. 5 Under Chassis View.

insulated flexible coupler. An 8 cm diameter disc of undercoated aluminium is fixed to the raised boss of the drive. The disc is viewed through an arc shaped window in the front panel. A piece of clear perspex which has been drilled and tapped should cover the window. During calibration, Letraset may be placed in position and rubbed on to the disc to mark the calibration points before the Perspex has been screwed into position. On 14 MHz, calibration points every 100 kHz will give points every 50 kHz on 7 MHz, and every 25 kHz on 3.5 MHz. The dial and S-meter may be illuminated by a 12 V lamp positioned between the dial and meter.

ALIGNMENT

Before calibrating the dial, the VFO tuning range must first be established. If a counter or frequency meter is available, C21 is adjusted so that a VFO tuning range of 14 to 14.8 MHz is obtained. It should be possible to set C21 so that there is a bit to spare at each end of the tuning range. If these instruments are not available, a calibrated receiver, loosely





Above Chassis View.

coupled, which covers at least one of the bands may be used to check the VFO frequency range and C21 adjusted accordingly. The same equipment may also be used during calibration of the dial. The metal

cover may influence the VFO frequency, and allowance must be made for this. With the tuning range thus established, the input BPFs may now be adjusted. A signal generator is ideal for this. If no generator is available, an

antenna connected to the input should yield enough signals or noise for L1 and L2 to be peaked for each band for maximum signal consistent with response flatness across the band.

S-meter sensitivity pot R82 should be adjusted so that the meter does not pin violently when a strong station is tuned in—but at the same time responding to reasonably weak signals. This should occur at about the midway position of R82.

PARTS SOURCES

Most of the components are available from well stocked electronics shops. However, the following parts may be difficult to find, and sources for these are as follows:

Aegis coil formers: M. A.

Neosid toroids: M. W.

Air trimmer: M.

Variable capacitor: M. E. W.

CA3028: M. E. R.

S-meter: Dick Smith.

Miniature 50 ohm coax (RG 174): E.

Dial drive: M. W.

A: Aegis, 141 Christmas St, Fairfield, 3078.

E: Ellistronics, 289 LaTrobe St, Melbourne, 3000.

R: Rod Irving, 50 A'Beckett St, Melbourne, 3000.

W: Watkin Wynne, 32 Falcon St, Crows Nest, 2065.

M: J. H. Magrath, 55 A'Beckett St, Melbourne, 3000.

Please send a large SASE to the author for a copy of the artwork, location diagrams and a detailed parts list.

Photography: Peter Dalliston.

AR

COMMERCIAL KINKS

David Norris, VK3DWN

MORE POWER FOR YOUR FT7

As everyone is well aware, FT7s are not the most powerful¹ radio and even after these mods you still may not set the world on fire.

The reason for my venture into the pizzazze matrix was to solve the low-power syndrome my radio has had from birth—5 W CW, 7½ W SSB. After a complete transmitter alignment, I found the transmitter was already perfectly aligned. The next course of action was purely selfish—I wanted more watts.

By removing both top and bottom covers and turning the radio upside down, at the back of the radio you will notice seven feed-throughs going into the PA module.

One of these is the ALC line and the wire should be colour-coded white with a grey trace. Snip this wire at the feed-through capacitor and insert two silicon diodes in series (anode cathode— anode cathode). In this line the anode goes to the ALC wire and the cathode goes to the feed-through.

Now assemble the set making sure you

have reconnected the speaker leads. Supply power to the radio and connect a power meter and dummy load—preferably a power meter that is not frequency conscious (Daiwa CN620A or similar).

On transmit in the CW position adjust RV1501 (through the hole in the back of the set near the key socket) with a small screw-driver for maximum power.

Next adjust C1501 (through the hole in the back of set near the antenna socket) with a non-metallic alignment tool for maximum power on 10 m.

Now readjust RV1501 (through the hole in the back near the key socket) for some ALC action. Go to the band that produces the least power (should be 10 m). Note this power, then go to the band that produces the most power (this should be 80 m) and reduce RV1501 to the power level noted on 10 m. You should find you have about 20 W of carrier and 25 W SSB on all bands.

By now you have possibly discovered the radio requires more current and if your power supply was a borderline case you might find this to be your next project. As per all "back yard" modifications, the success of your undertakings cannot be guaranteed.

Technical Editor's note:

The FT7 is a nominal 10-15 W transmitter. The owner's manual describes a procedure, for setting the ALC, which is similar to the procedure given by David. An output in the region of 18 W is usually attainable with a 13.8 V supply.

In a recent letter David quotes an SSB output of 44 W for 6A DC input. Although David has not had any ill effect on the FT7 it is suggested that increasing the output above about 20 W considerably increases the risk of damaging the PA stage especially if working into any appreciable VSWR.

AR



THE EXPERIMENTAL AMATEUR

Lindsay Lawless, VK3ANJ
Box 112, Lakes Entrance, Vic 3909

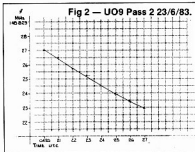
SATELLITE TRACKING 3

This is the last of three articles about simple observations of amateur satellites; it is about recording "Doppler" effect frequency changes of satellite signals.

"Doppler" effect is the name given to received signal frequency changes caused by a relative radial velocity between the signal source and an observer. If the distance between source and observer is decreasing there is an apparent increase in the received signal frequency proportional to the rate of change of distance (velocity). If the distance between observer and source is increasing there is an apparent decrease in the received frequency. Doppler frequency changes of satellite signals at an earth station and Doppler frequency changes of earth station signals at a satellite make communication between the two difficult because compensation for the changes has to be made at the transmitter or receiver; this is further complicated if the velocity is also changing. However Doppler effect also has important uses — navigation for example.

A receiver with CW and SSB capability plus a digital frequency display makes the job of recording frequency changes against time relatively easy but if you don't have one of these modern gadgets you will need a good AF oscillator to measure the "beat" frequency difference resulting when the receiver is set to the satellite true frequency and USB or LSB is selected.

As an example of observation and re-



Pass No 2 (Fig 2) is nearly an overhead pass because the time in range is 10 minutes, which is close to the previously estimated 12 minutes for a UO9 overhead pass. Also the frequency change is greatest for this pass because the radial velocity on overhead passes is higher than on others. The UO9 operating frequency is 145.825 MHz and from Fig 2 the frequency change is plus 3.6 kHz and minus 3.3 kHz. Radial velocity is approximately — frequency change \times centre frequency \times speed of light i.e. $v = \Delta f/c$; from this the approaching velocity is 7.4 kilometres per second and the receding velocity is 6.8 kPS. Compare this with the calculated orbital velocity in the second article. This confirms the calculation and illustrates the fact that maximum radial velocity on overhead passes approximates orbital velocity.

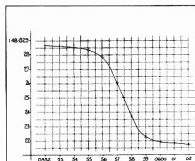
The graphs also provide a better estimate of the time of closest approach. This occurs when the frequency equals 145.825 MHz. The times are — Pass 1—0423.2, Pass 2—0557.45, Pass 3—0730.45. From this data the orbital period approximates 93.7 minutes. (This doesn't check with previous estimates and at the moment I don't know why.)

Pass 1 and Pass 3 are obviously further away than Pass 2. My conclusion is that Pass 1 is about 23° east of my QTH and Pass 3 23° west. I leave it to readers to check this. This information about the communication satellites is useful for determining the best access times and the likely coverage. The communication addicts have lots of published information, charts, ready reckoners etc to assist them to make QSOs but I suggest that more interest and satisfaction will be obtained if a little time is spent deriving the information from personal observations.

For the not so QSO addicted amateurs the field is vaster than I have outlined here. Position location is possible using Doppler

| Pass 1 | | Pass 2 | | Pass 3 | |
|----------|----------|----------|-----------|----------|-----------|
| Time UTC | Freq MHz | Time UTC | Freq MHz | Time UTC | Freq MHz |
| 0420 | 145.827 | 0552 | 145.828.6 | 0727 | 145.826.9 |
| 21 | 26.5 | 53 | 28.6 | 28 | 26.5 |
| 22 | 25.7 | 54 | 28.5 | 29 | 25.9 |
| 23 | 25.2 | 55 | 28.3 | 30 | 25.3 |
| 24 | 24.5 | 56 | 27.8 | 31 | 24.5 |
| 25 | 23.9 | 57 | 26.0 | 32 | 24.0 |
| 26 | 23.4 | 58 | 24.2 | 33 | 23.5 |
| 27 | 22.9 | 59 | 22.2 | | |
| | | 0600 | 21.9 | | |
| | | 01 | 21.8 | | |
| | | 02 | 21.7 | | |

Table 1



measurements for example, and with the help of other amateurs making similar observations simultaneously precise orbital characteristics can be derived. I found two relatively non-technical books about satellites in the local library and if these are still available, I can recommend them; *Satellites and Scientific Research* by Desmond King-Hele and *Soviet Space Science* by Ari Sternfeld.

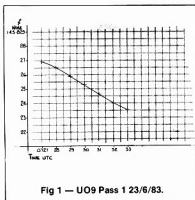
... what dreadful wonder
Is that appears in heaven yonder?
A comet and without a beard!
Or star that ne're before appeared?

Samuel Butler

HAPPY ORBITING

FIRST YL...

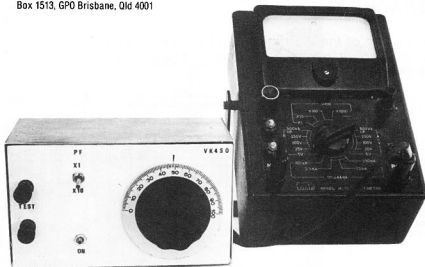
At the first RSGB council meeting for 1984 Mrs Joan Heathershaw G4CHH was elected Executive Vice President — the first YL to be elected to this position.
from RSGB News Bulletin No 3.



Recording of Doppler frequency changes I have used the three UO9 passes over my QTH on 23/6/83. Table 1 is the recorded data and Figures 1, 2 and 3 graphs of the results. The graphs illustrate very nicely our previous conclusions about satellites and introduces to the exercise a modicum of scientific precision.

A recurring problem here was determining low values of capacitance accurately, typically those less than 100 pF. This prevented the use of many salvaged and unmarked components in homebrewing.

Mervyn Eunson, VK4SO
Box 1513, GP0 Brisbane, Qld 4001



AN ACCURATE CAPACITANCE BRIDGE

COSTS NEXT TO NOTHING TO BUILD

While adequate on the higher ranges, my mains-frequency R/C bridge exhibited severe insensitivity and inaccuracy on the 1000 pF range and the inevitable strays rendered the lower range to 100 pF meaningless.

Essentially, at the low frequency of the AC mains, small capacitances present extremely high reactance which are difficult to measure with the bridge circuit. But, were the AC source to be at radio frequency the reactances would be vastly lower. For example, 50 pF at 50 Hz has a reactance of some 64 megohm as against 3 kilohm if the AC source is at 1 MHz.

This factor, following the poor performance of a Wien-bridge functioning at an audio frequency of 10 kHz, caused the development of this simple device. It easily copes with measuring the precise values of unmarked air-spaced variables, piston trimmers, butterflies and even that of the odd inch or so of adjacent wires or the short bit of coax.

The instrument is not complicated. A Hartley oscillator at 1 MHz drives a straight capacitance bridge, the variable arm of which is a small tuning capacitor. There are two switched ranges 0-100 pF and 0-1000 pF. Two diodes form a voltage-doubler detector. The null detector is the bench multimeter and the

readout scale a skirted knob marked 0-100. Belying its simplicity, accuracy can be one percent on both ranges, and a value of 1 pF can be measured effortlessly!

For the BC108 generator, the inductor was a ferrite-rod aerial coil of 110 turns salvaged from a pocket radio, modified by tapping at eighteen turns for feedback. A miniature oscillator coil is less suitable for the inductor and gives low output. When resonated with an 82 pF ceramic, output is obtained at about 1 MHz, but the frequency is in no way critical, and anywhere between 500 kHz and 3 MHz will give the same result. At higher frequencies the instrument becomes overly sensitive and too touchy to adjust.

The insignificant 2 mA drain of the oscillator conveniently allows a small battery to be used (an external supply could bring in strays). *One point must be observed — a secondary winding is not employed and the negative terminal is common to both the DC supply and the RF source: if the case is of metal then neither battery post may be returned to frame.* The earthing point for the bridge (and case) is conveniently at the rotor shaft of the variable capacitor, C2.

For the null detector, a large scale meter is

easiest to read, and to keep the device compact and inexpensive the bench multimeter is plugged in. The multimeter need not be anything out of the ordinary as the output from the voltage-doubler detector is quite high. This permits the DC voltage ranges to be used. The 25 V range should give substantially full scale deflection at imbalance and reserves the 5 V range for final fine determination of the null. It is imprudent to switch to the low current ranges, say 50 μ A or 100 μ A, under penalty of a bent needle, as several hundred microamps can flow through the bridge under conditions of gross imbalance.

The variable component C2 is a small air-spaced tuning capacitor, its prime requirement being straight-line-capacity (semi-circular rotor plates) to give linear readout. Its maximum value is not at all critical, and may be anywhere between 50 pF and 200 pF; a value of about 100 pF is perhaps optimum, as suggested in the diagram, and is the easiest to obtain. Mine was a salvaged item measuring 5-125 pF. Any value, even if not known precisely, can be accommodated by altering the fixed capacitor C1. It is advantageous for the minimum capacity to be as low as

R.F. Generator

Bridge

Detector

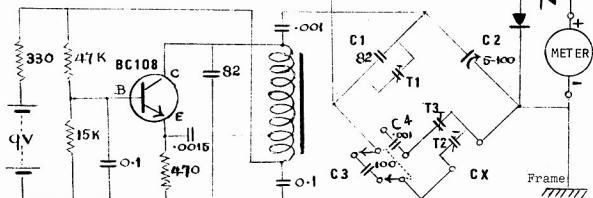


Figure 1 — The Circuit

possible, and if you have a choice, take the one with the lowest minimum to achieve the best accuracy.

Commercial bridges are usually multipurpose and of the Owen or De Sauty types with two resistive arms, but in this specialised arrangement a pure Wheatstone configuration, with all arms of capacitive reactance, is better for our purpose. The condition for balance is:—

$$\frac{C2}{C3} = \frac{C1}{Cx}$$

The fixed capacitor C1 (adjusted for calibration) is substantially of the same order as the meshed value of the variable arm C2, when the readout on the linear scale is a direct percentage of the switched standard C3. In practice, C1 is a nominal 82 pF ceramic padded with a 20 pF variable trimmer T1. The same values may be used for T2 and T3. Miniature air-spaced variable trimmers are best or alternatively beehive types: compression trimmers may be finicky to adjust correctly and it is precise adjustment of the trimmer T1 that determines successful calibration.

The range multipliers are C3 and C4. Here one percent close-tolerance items are called for as standards. 100 pF and .001 uF are suggested, but other ranges may be substituted. With but two ranges to accommodate, undue complexity is avoided, and the standards can be mounted directly on a small DPDT switch.

Construction should not offer any difficulty and there is nothing crucial about layout. The oscillator components may be mounted compactly on a piece of tag strip along with the detector diodes and trimmers. The ferrite-rod inductor can fasten to the reverse side. The switched standards are soldered directly to the switch lugs. All wiring naturally must be direct and rigid. While the inevitable strays present no problem (they can actually assist) it may be better to minimise such by using a non-metal case.

Calibration, to ensure tracking of the dial, is without trauma. One bugbear is that at

minimum the value of the variable arm C2 is not zero, but something like 5 pF. If Murphy is kind, the strays across Cx will balance this residual value; if not, T2 is employed.

There also is the fact that the travel of the capacitor I used for C2, from 5 pF to 100 pF, is over only 95 units as against 100 units of the scale. This is countered in practice by adjusting C1 empirically to something less than the theoretical 100 pF.

Substituting these figures in the formula for balance seems to suggest that high accuracy is not obtainable, unless an individual dial is plotted. Having tried this, together with the alternative of correction charts, it has been found decisively that the simple expedient of the numbered dial is no less accurate if there is entertained a minuscule shift in the null point.

The procedure is to select the lower range, and with no external capacitor across the test terminals, C2 is set to minimum with scale reading of zero. If necessary, T2 is adjusted

for null to set the lower edge. Now, place a known 47 pF across the terminals, set the dial to the 47 mark, and adjust T1 for null. Do likewise with a known 100 pF, then repeat the foregoing steps until judicious juggling produces a satisfactory compromise setting of T1.

The higher range is next dealt with likewise, mainly by adjusting trimmer T3 to set the lower edge to zero and checking a few standard values against the dial. It should not be necessary to touch trimmer T1, which would destroy the calibration of the lower range. (C4 could be adjusted . . . Ed.)

In practice, the instrument is a positive delight to use, with a very pronounced sharp quick null at the point of balance. This presupposes that the items to be measured are without leakage, which otherwise the bridge sees as impedance; this merely causes the null to be less than complete and possibly sluggish, but the accuracy is not impaired.

AR

TWO AMATEUR FAMILIES GET TOGETHER



Marlene VK5QO, Brian VK5CA, Mavis VK3XB, Brian and Ivor are Life Members of the Institute. Submitted by Marlene VK5QO. AR

FSK for the FT101Z

Ivan Huser, VK5QV
7 Bond Street, Mount Gambier, SA 5290

Many RTTY operators use two audio tones fed into the microphone socket of a SSB transceiver to produce a pseudo FSK signal. This system is often loosely referred to as AFSK and in most cases results in a satisfactory signal provided that audio distortion, the carrier and the unwanted side-band are not present to any great degree. RF feedback and hum-loops may also compound the problem.

It is generally agreed that the most satisfactory method of generating an RTTY signal is to use true FSK. This article shows how to add FSK to your FT101Z transceiver.

THEORY

The "tune" crystal in the FT101Z is 2.3 kHz away from the LSB crystal and after heterodyning, will produce a "tune-up" carrier 2.3 kHz on the low side of the LSB carrier position — see figure 1.

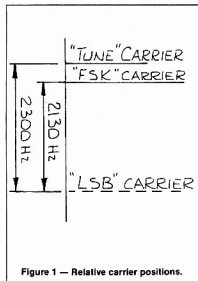


Figure 1 — Relative carrier positions.

The result is similar to that which would be obtained by using an AFSK tone of 2300 Hz on lower side-band but with the advantage of not radiating the residual carrier and upper side-band.

Note that this "tune-up" carrier will be resolved by a receiver as a 2300 Hz tone when the receiver is tuned to the non-existent LSB carrier. Since 2300 Hz is for all practical purposes close enough to the 2295 Hz "space" tone used in narrow shift RTTY systems, there is no reason why it cannot be used for this purpose.

If now the VFO frequency is shifted low by 170 Hz, the radiated carrier will shift high by the same amount and towards where the LSB carrier would normally be positioned. On a receiver, these frequency shifted carriers appear as two tones having frequencies of 2300 Hz and 2130 Hz respectively which is

very close to the AFSK tones of 2295 (space) and 2125 (mark).

It can be seen therefore, that by using the LSB crystal on receive and the "tune" crystal on transmit, lower side-band FSK can be obtained with a minimum of fuss.

CIRCUIT

The modified circuit employs two miniature DPDT relays to enable the "tune" position of the mode switch to be used for both FSK and tuning.

The "tune" position is ideally suited for this second function since the carrier is already available and non-essential circuit blocks such as audio and ALC are disabled.

Figure 2 shows the necessary connection to the clarifier circuit to obtain the required frequency shift. When operating FSK it may be desirable to switch in the receive clarifier to compensate for any slight difference between station frequencies.

The circuit modifications are given in Figure 3.

The 1N4148 diode in the "tune" position of S3h is required so that relay 1 is energised in the "tune" position only. With relay 1 energised, the +8 V is removed from the common terminal of S3g and transferred to a pair of change-over contacts operated by relay 2. At the same time, the coil of relay 2 is connected

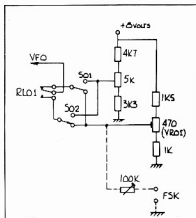


Figure 2 — Clarifier connection.

in parallel with the coil of RL1 in the FT101Z.

On receive, relay 2 is de-energised, the LSB crystal is selected and the FSK trim-pot disconnected. The receiver is operating as a normal LSB receiver.

When switched to transmit, relay 2 is energised, the "tune" crystal selected and the

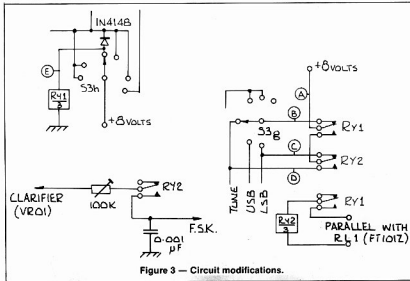


Figure 3 — Circuit modifications.

Having been an employee of Air Queensland (formerly "Bush Pilots") for the past fourteen years Anne, together with all other employees and especially the crew of VH-MAL led by Captain Reg Perkins, with F/O Col Shedden, backup pilot Paul Phelan, engineer John Lucas and radio engineer Barrie Smeaton who took this lovable old "gooney bird" back to Hong Kong, felt very sad to see one of the very loyal and reliable DC3s depart the fleet. Cathay Pacific began thirty seven years ago with this aircraft which they called "Betsy" then registered, and now re-registered VR-HDB. During its service with Air Queensland she was VH-MAL, and now she was going home to Hong Kong to her final resting place in a newly constructed Museum of History and Science.



"BETSY" FLIES HOME WITH BARRIE SMEATON VK4ALK (ALIAS VK4MAL) ON BOARD.

Written by Anne Benson VK4NXX from Barrie's Log entries

When it was announced that this DC3 was to return to Hong Kong there was great jockeying for positions to take it back and the Cairns Amateur Radio Club of which Barrie is a member, is indeed grateful to AirQ for allowing Barrie, the ace radio man, to go along and iron out any bugs in the aircraft radio and to install amateur gear and "talk to the world". Barrie installed a Collins HF220 system — which created a tiny problem as the aircraft needed a grounded HF antenna — and the type of load box was designed for a Learjet, not a DC3! However, the load box was finally located in the tail area, the HF transceiver and power amplifier installed in the luggage area forward of the bulkhead. For 2 metre contacts there was an IC2A running on internal batteries, using an Emergency Locator Transmitter aerial cut down for

146 MHz from 121.5 MHz (reason being to keep the aircraft pretty for PR photographs, etc in Sydney prior to leaving from Cairns on its journey north).

After installations were completed, contacts were made with Gordon VK2AVU and Tom VK4AOG and it was all systems go. Gordon and Tom monitored VK4MAL from go to wo and VK4NXX had daily contacts with Barrie, and also brought the Chairman of AirQ, Sir Sydney Williams to the mike to wish the crew a pleasant and troublefree journey.

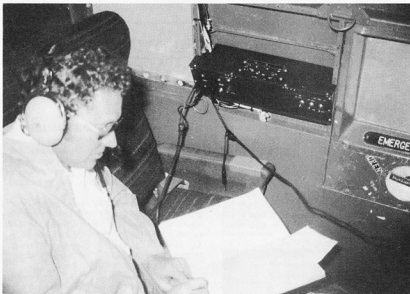
The first sector of the trip was Cairns to Port Moresby and until 150 kms from Cairns Barrie was able to make 2 metre contacts via the Cairns repeater. His first contacts both on VHF and HF were, and rightly so, with fellow CARC members, Paula Chappell VK4KIZ and Phyl VK4NDG.

The Collins rig was used also as a backup for the aircraft's system and all were advised if Barrie had to suddenly dive off in the middle of a conversation it meant there was trouble with the A/C radio.

Approaching Port Moresby, their repeater was triggered all right, but no contacts made — apparently the locals were having their siestas.

During the whole flight in the vicinity of Indonesia, the plane was plagued with a strange sweeping noise on 21.160, the nominated frequency used during the trip. Also, the HF rig had an intermittent fault which was regularly, albeit temporarily, rectified by a swift bash on the top exciter.

First contact on the second day after an overnight stay at Wewak was with Alan VK2DCM — Alan was worked many times and



VK4MAL at Work.

was able to relay to others not so fortunate in having a good signal from VK4MAL.

Contacts on the first day numbered 180, and Barrie looked forward to quite a few on the second day and was not disappointed. He had contacts with some ZS2 stations and engineer John Lucas was amazed with the wonders of amateur radio when one of these stations was located just a few doors from his former home in South Africa.

On arrival in Biak for fuel they spent hours of frustration with the authorities. Only American dollars were acceptable and fortunately Paul had split up \$US5000 amongst the crew who hid this "loot" in various places — John had \$1000 in his shoe, Reg a considerable amount hidden in the cockpit (the rest of the crew knew not where). Eventually, Paul gathered the necessary together, satisfied the authorities in town and arrived back at the aircraft 2½ hours later minus a lot of dollars.

After takeoff from Biak VK4MAL had the first of many contacts with Geoff Greene VS8DA, a Cathay Pacific pilot who from thereon monitored and was able to pass through to Cathay hierarchy progress of VH-MAL.

Another interesting contact was with Ian Doncaster (who had previously spent some time in Cairns) ex VK4NIC/3X now KX6PO, aeronautical to aeronautical mobile. Ian was very excited about this as it was his first such mobile contact.

Many contacts were made on this day including VU8AUS from India but Barrie had no luck in keying up DU repeaters.

On arrival at Davao City the crew was put into quarantine — nobody had told them they needed cholera shots. They were transported to the hotel to await their shots. Their hotel was in a delightful spot right on the water and eating and drinking continued for many hours — all other hotel guests were Japanese.

Takeoff from Davao City next day was at



Barrie watches as Captain Reg Perkins talks to Air Queensland's Chairman, Sir Sydney Williams.

1100 hours. Reg flight planned for 914/1200 m but this was not to be — 3600 m was the required flight level. The weather at this height was very cold (inside and out) minus seven degrees and plenty of cloud, nothing to see for four hours. During the flight to their next destination on this day (Manila) Barrie had a contact with a VK3/DU1 on holidays in the southern part of the country and he organised contacts on 7 MHz with three local stations. Apparently the DU1s seemed a bit hesitant.

After a smooth touch down at Manila the crew went to their digs at the Manila Peninsula Hotel.

The final leg had come — Manila to Hong Kong and on board were the personnel from Cathay for the historic homecoming of their Betsy. The Cathay personalities comprised their Chairman, Sir Adrian Swire, Martin Willing F/O 747s and Capt Brian Wightman, Director of Flying Operations.

Halfway between Manila and Hong Kong VH-MAL was trying to organise a transmission through "Hong Kong Dragon Radio" — ship to shore service. They were informed that as they were an aircraft, this could not happen — next plan was for a "talk-back radio show" — to do this a contact with Barma Radio Switzerland was suggested — nil contact. Plan 3 — Barrie contacted VS8DA who had a cassette running — they had a bit of a chat then the cassette was played back over the phone — it worked!

Approaching Hong Kong several contacts were made via 2 metre repeaters. Also there were an enormous amount of pirates, Barrie discovered that IC2As were sold in Hong Kong like loaves of bread to anyone who wants one.

Finally, Betsy was home — ending the trip with a magnificent one hour's flight around Hong Kong with Sir Adrian at the wheel. They will never forget the welcome on the ground — with the Police Band and others playing stirring musical compositions including "Those Magnificent Men and Their Flying Machines" and "lots of speeches, drinks and good food". Barrie's final lines in his Log read — "A couple of days later John and I went to the Hong Kong Amateur Radio Club, where we met a couple of chaps — they took us out on the town — what a night!"

And so it was over, and very worthwhile from the amateur viewpoint with over 400 contacts being made; each one would have long ago received their special QSL card, these cards being supplied by AirQ.



So, over they went in an aircraft older (just) than Barrie and back home in a comparatively new Boeing 747. Barrie was asked which he preferred — "Cripes mate, give me the DC3 any day" was his reply.

AR



**Our Magazine
has a LARGE
APPETITE.**

Articles on amateur radio are always welcome.

AR SHOWCASE



EMTRONICS NEW LOCATION

Emona Electronics Pty Ltd, better known as Emtronics, have just purchased their own corner building in a prominent position on the corner of Wentworth Avenue and Campbell Street, Sydney.

"We have at last managed to achieve our dream of up-dating our service to bring all the facilities under the same roof," says Rudi Breznik, director of the company, and electronics engineer and designer of their popular tuners and noise bridges etc. "We now have better display facilities, complete office and accounting facilities as well as a service department upstairs which will shortly be completed, so we can give our customers even better service," says Elizabeth Breznik, also company director and administrator of majority business affairs and marketing.

Fresh coffee and a lounge chair are part of the comfort offered to customers who come to share the friendly atmosphere that Rudi and Elizabeth give — and John their assistant who is also becoming well known for his well-mannered and helpful service at all times.

Emtronics plan to develop the shop next door very shortly as well and more news on its exciting new range of products will be revealed in the near future. **AR**

3M FLAT CABLE GETS MILITARY SPECIFICATION

Electronic manufacturers will be able to choose all 3M connectors in design and manufacture of systems to meet military specifications.

Marketing Manager of 3M Australia's Electronic Products Division Mr John Blewett said 3M 3365 flat ribbon cable has gained military specification MIL-C-49055A approval.

Mr Blewett said 3M sockets, headers, printed circuit board connectors and DIP connectors meet military specification MIL-C-83503.

Military specification of flat cable would allow the design and manufacture of electronic systems to meet military standards, using all 3M connections.

Mr Blewett said 3M manufactures a wide range of flat cable, plugs, cardedge, delta and delta ribbon connectors and advanced insulation displacement bread board prototyping systems. **AR**

TRIO RELEASES NEW THREE CHANNEL — SIX TRACE SCOPES

Parameters has announced the newest additions to the Trio range of oscilloscopes.

The two new models feature three channels each of which can be displayed simultaneously using the main sweep while individual delayed waveforms of these channels can also be displayed providing a total of six traces. Bandwidths are 60 MHz (CS-1060) and 40 MHz (CS-1040).



According to a representative from Parameters these new scopes are derived from the highly successful CS-2100/2070 series to further enhance Trio's attack on the high and professional scope market.

Along with the wide bandwidth and six trace capability goes a range of other top notch capabilities such as sensitivity down to 1 mV/div, a 150 mm rectangular, high resolution 16 kV CRT with an illuminated interface graticule and eight full divisions of usable dynamic range for accurate, undistorted waveform display. In addition they feature vertical-axis signal output (for a frequency counter etc), automatic synching of video signals and even a trace rotation control for compensating for the earth's magnetic field.



Indicative of the new styling adopted by the 100 MHz models, the CS1040/60 come in a lightweight (11 kg) package measuring only 304 mm x 160 mm x 401 mm. The carrying handle doubles as a tilt stand for user convenience.

For further information please contact: Parameters Pty Ltd, PO Box 573, Artarmon, NSW 2064. Telephone: (02) 439 3288. **AR**

NEW TRIO 20 MHz OSCILLOSCOPE

Parameters Pty Ltd has released the new TRIO CS-1022. Offering dual traces and 20 MHz operation it is said to be one of the most economically priced, high performance oscilloscopes available on the Australian market.

The CS-1022 features a new design delivering a sensitivity which is continuously adjustable from 1 mV/div to 5 V/div. Sweep time is variable from 0.5 s per div to 0.2 μ s per div. A X10 MAG sweep multiplier allows a user to magnify the sweep at the touch of a button to view parts of complex waveforms.

A large 150 mm rectangular domed mesh, post accelerator type CRT provides a bright high resolution display. To eliminate parallax errors the graticule is located on the inner face of the CRT and continuously variable illumination of the graticule is standard.

To ensure high precision waveform observation Trio is guaranteeing the accuracy of the new scope to +3 percent over a temperature range of 0 to 40°C. A full eight divisions of linear, undistorted vertical axis dynamic range is available enabling the scope to be used right to the frequency response limit without distortion.

A video clamping function is provided to enable quick synchronising of vertical and horizontal video signals. This technique eliminates the troublesome setup usually required with conventional approaches and provides amazingly stable synchronising.

A complete redesign of the front panel layout was undertaken for this new scope. The centrally placed CRT and a more human engineered grouping of controls allows faster and easier-to-understand setup procedures.

For further information please contact Parameters Pty Ltd, PO Box 573, Artarmon, NSW 2064. Telephone: (02) 439 3288. **AR**

NEW MINIATURE PROGRAMMABLE POCKET SCANNING RECEIVER WITH 160 MEMORY CHANNELS

The new Microcomm Model SX-150 incorporates many unique features, a lot of which are not even included in the much larger desk top scanners. Amongst these are its ability to cover over 45 000 frequencies within the range of 30-88, 138-176 and 380 to 514 MHz. It also has a total of 160 memory channels. The first forty of these are normally used to manually store frequencies in while the additional 120 are used by the SX-150 to automatically memorise frequencies it has located signals on while in its search mode. These top 120 channels can also be manually programmed.

Other features include a priority channel, programmable 0.1 or 2 second scan/search delay, sixteen channels/second scan/search speed, LCD display, clock, as well as Rubber duck antenna using a BNC Connector.



The SX-150 is supplied with rechargeable Nicad batteries and battery charger. Dimensions are only 175 mm (H) x 74 mm (W) x 42 mm (D).

For further information contact the Australian distributors, GFS Electronic Imports, 17 McKeon Road, (PO Box 97) Mitcham, Victoria 3132, tel. (03) 873 3777.

AR

NEW AIDS AVAILABLE FOR SWLS AND THOSE INTERESTED IN COMMUNICATIONS MONITORING

GFS Electronics of Mitcham, Victoria recently announced the release of five new publications which, they are sure, will become valuable additions to the libraries of those interested in short wave listening and communications monitoring.


World Wide Radioteletype Stations In Frequency Order

370-30 MHz.

CONTAINS

OVER 2000 RTTY STATIONS
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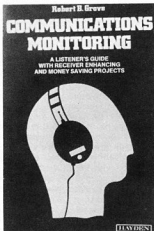


The first of these new books is Bob Groves' "Worldwide Shortwave Frequency Directory". It is a comprehensive 1.6 to 30 MHz directory of agencies and services using the HF Spectrum along with their frequencies. This A4 size book has over 200 pages.

Also produced by Bob Grove is a sixty minute audio cassette titled "Sounds of Shortwave". It is a lively professionally produced tape which identifies most of those strange sounds that can be heard on the shortwave bands. The listener can learn, from it, how to recognise such signals as jamming, spy transmissions, telemetry at various speeds, slow scan TV, teletype, multiplex, facsimile, noise from Jupiter plus many more. As an added feature, helpful answers to questions on antennas, receivers, grounds and other subjects most asked by SWLS are also included.

Third in this line of new publications is the European Edition "Shortwave Frequency Directory". It lists a wide range of European, US, Canadian and Antarctic Services as well as their frequencies. Similar in many respects to its bigger brother, the Worldwide Shortwave Frequency directory, it is smaller in page count and biased toward European listings.

Published by Klingenfuss, Germany, the "Worldwide Radioteletype Stations in Frequency Order" has also been released in Australia. It contains a listing of over 2000 RTTY stations and their frequencies including eighty three press services, air, weather, government, military, marine and diplomatic services. Also included are stations transmitting in Arabic, Cyrillic, third shift Cyrillic alphabets, bit inversion, FEC and SITOP. Additionally there is a list of CCITT definitions of essential technical terms in the field of telegraphic and ARQ transmissions.



The last of the new releases is the book titled "Communications Monitoring" by Bob Grove. He has written for the shortwave listener and scanner buff and describes all facets of radio listening from VLF through to UHF. It describes subjects such as paging, voice scrambling, bugs, antennas, receiver accessories, plus more. It also includes a home projects section which gives construction details on a wide variety of projects including antennas, amplifiers, power supplies, receivers, filters and even a hydronic amplifier.

For further details of any of the above publications contact the Australian distributors, GFS Electronic Imports, 17 McKeon Road, (PO Box 97) Mitcham, Victoria 3132. Phone (03) 873 3777.

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CONTACT US FOR QUOTES



HOW'S DX

Ken McLachlan, VK3AH
Box 39, Mooroolbark, Vic 3138

After listening on the bands for considerable periods of late, personal feelings are that it is time that all amateurs, from all continents, particularly those that are DX orientated, took a critical look at their operating habits and especially those pertaining to DX Nets and DX operations.

DXpeditions cost a lot of money to launch (the bulk of which comes out of the operators own pocket) and they suffer untold inconveniences and at times their health and welfare can be jeopardised. It is apparent that such expeditions seem to be fair game for the ruthless as they have no compunction in deliberately jamming the transmit frequency whether it be the transceive or "split" frequency mode. The self appointed policemen that are attracted to these operations feel they are assisting but generally they are causing more havoc and creating a bad image for the hobby.

Nets are hounded by being the butt for many stations trying to tune up on that frequency to gain the last milliwatt out of their linear for minutes on end, generally frightening the rarer and less powerful stations away from the Net generally for keeps and disappointing thousands.

Ladies and gentlemen, when you sit down in front of that receiver please think of your fellow amateur by engaging brain before actuating hands and mouth.

STATISTICS

A note from Jan and Jay O'Brien, W6GO/K6HHD, the publishers of the QSL Manager Directory of the same name, send the statistics of their French Polynesia 1982 and 1983 expeditions as they are to date.

The QSLs received for both expeditions were received from JA-45%, EU-43%, SA-40%, VK-36%, USA-33%, AF-31%, VE-27% and ZL-22% and for the 1983 expedition of 1100 cards received and replied to by the first week in February comprised of 3.5 MHz-26%, 7.0 MHz-20%, 10 MHz-30%, 14 MHz-19%, 21 MHz-26% and 28 MHz-31% of the contacts made on each particular band.

Jan notes that all of the cards that have arrived have been processed so far and that Jay made a staggering score of 1,493,152 points in the CQ WW CW contest. Unfortunately no stations were heard on 160 metres.

I have found their publication invaluable and highly recommend it in tracing obscure QSL data. Anyone interested in obtaining a sample copy may do so by sending a large self addressed envelope with US 80 cents postage to W6GO/K6HHD, PO Box 700, Rio Linda, CA 95673 USA and I am sure a copy will be sent by return mail.

KERMADEC ISLANDS

Warick ZL8AFH, has received his beam antenna and is starting to become more DX orientated to the joys of many DXers. His QSL arrangements are to his home call ZL3AFH as per the Call Book and his mother is looking

after the paper work for him. Thankyou Mrs Lather on behalf of all DXers.

According to the RSGB DX News Sheet, 14/02/84 "There is still some doubt about whether sufficient funds will be available for the DXpedition to Raoul Island by ZL1AMO and VK9NS".

DID YOU WORK AZ52A?

A number of VK's wondered what they had struck when they worked this unusual call sign. This call belonged to a group of Argentine amateurs who operated both SSB and CW on all bands from the South Orkney Islands. QSLs to LU2A.

QATAR

Two new licences have been reported to be active from this area. They are Mohamed A71BK and Les A71BJ. At this juncture no "sure fire" QSL route is known for Mohamed but Les gives his info as PO Box 180, Harrow, England.

SILENT KEY

Well known to VK DXers, Ernest "Bud" Devine HC8GI became a Silent Key last December. Bud was a long time resident of the Galapagos and always had time to chat with his many friends. Condolences are extended to his family.

CUBA CL6

CL6KW has been worked with good reports in VK and is giving his QSL information as PO Box 955, Santa Clara, Cuba for those desiring a direct card.

TARDY QSLING

Not an unusual subject in this column but Joy VK2EBX's experience deserves printing to save other unwary operators from filling someone's "coffers". Joy relates "I am very disappointed with VE1BZV (Prince Edward Island). I badly needed this card for 'Worked all Canadian Provinces Award' under my Novice call sign, as I had all the rest confirmed, but in spite of sending four times (once through the Bureau, twice with IRCs, once with SASE with more than sufficient Canadian stamps to cover postage) and letters explaining the situation, I have never received his card. 'Green stamps' are nearly impossible to obtain at this QTH and there is nothing further that I can do".

If any reader has any ideas of how Joy may gain this card, so that she may complete the requirements of this most coveted award which she acquired during her Novice days, they may write direct to Joy at PO Box 22, Yeoval, NSW 2868. Any help would be appreciated.

Joy remarks in her letter "On the good side of the ledger Jenny N50DX, enclosed a Monserrat mint stamp (change presumably) for the card from VP2MDX. That doesn't often happen. Also Howard NP4DR/V2A returned my IRCs with his QSL, another thing that doesn't happen often". My comments are Joy,

that not all amateurs are out to capitalise on our hobby.

CONGO REPUBLIC

TN8EE is back from his holidays in France and the good news is that his cards are now good for DXCC. QSL to F6ECX.

AVES ISLAND

This expedition to Aves, also known as Bird Island, which is an uninhabited island approximately 450 metres long by sixty metres wide in the Caribbean Sea was a success and the VKs got their share of the action. Congratulations to all the operators who got this off the ground and to the Venezuelan Navy for getting them safely there in their new high speed destroyer. QSL to YV5AJ Radio Club Venezolano, Av Lima, Qta El Rosal, Los Caobos, Caracas, DF, Venezuela.

BURMA

Yet another attempt is being made to get some operation from this much wanted country. YB0BZZ who makes frequent business trips to Rangoon has applied to the Department of Telecommunications for a licence. It is reported that the Director is favourably impressed but it is all up to the Military administration who have the final say! Which I presume will be NO!

It is interesting to note that the 1984 Foreign Call Book lists seventeen amateurs including none other than XZ5A and XZ9A for Burma. One cannot help but wonder where they got the information from?

PERU 4T4WCY

Lloyd and Iris Colvin, W6KG and W6QL, the "Globetrotting DXers" made in excess of 7,000 QSOs from Peru to stations in 133 countries under the call 4T4WCY and 8000 QSOs from Ecuador. At the time of writing they were still happily wending their way through South America. All QSLs to Yasme.

FRANZ JOSEPH LAND OPERATIONAL

UK1PGO is still flying the banner for this sought after area. Generally heard around 14.255 MHz at 1800 UTC.

PITCAIRN ACTIVE

Tom VR6TC, is active again. Generally heard around 14.140 MHz on Sundays at 0730 UTC in QSO with DL8FL.

BURUNDI

Bull 9U5JB, is sporting a 20-17-15-12-10 metre quad these days as well as a 40 metre delta loop. He operates SSB on all these bands. CW enthusiasts need not be discouraged as John 5Z4CQ, also known as KATKSY uses Bull's rig and call sign from time to time with CW exclusively. All QSLs ON5NT.

MACAO

Phil V6GCT, who has been turning up from some odd places of late eventually made it to

Macao as CR9CT. QSL to VS6CT.

New calls from this area will probably be prefixed as XX9 from the 1st of March this year. It is still hard to keep up with the prefix jungle of late isn't it?

UPPER VOLTA

Enno XT2AU, is operational. It is apparent that he does not like "dog piles" and wanders off to find another frequency when this occurs. He may be QSLed through his manager WA12EZ or direct to Enno Bussman, PO Box 845, Ouagadougou, Upper Volta. Enno is partial, as most amateurs in overseas countries, to used stamps.

WHISTLING CW

Overheard KP4EQF making contact with Y11BGD on SSB. KP4EQF was elated that he had achieved a contact, which was a new country. KP4EQF also wanted it on CW but the Y11BGD operator said he didn't have a key. Not to be outdone he persisted and finally suggested to the Y11BGD operator that he whistle the report. KP4EQF won and departed leaving a Iraqi operator speechless. It apparently pays to be persistent!

MISS THIS ONE

TA1AA tells all and sundry to QSL via the Bureau. What Bureau? It suggests that he is a phoney!

YL ON COCOS ISLAND

Bob W5KNE reports in QRZ DX that Tracey N1CWH/T19 appeared on 26th of January and set 20 metres humming. It is reported that Tracey with her OM are scientists and are with a party to do scientific work in the area. They are not DXers and expect to be active only about twice a week. At the time of compiling these notes there are indications that the licence may not be legitimate as the Costa Rican authorities have not given their blessing for the use of the amateur bands. If you are lucky QSL to Stuart Lardin Carse T12SLC, PO Box 81, Escazu 1250, Costa Rica.

Meanwhile the activity by Jose T19J and group has really looked after the Pacific area and he was worked by many in both the transceive and "split" mode. All QSLs to Jose Arias Romero, PO Box 2050, San Jose 1000, Costa Rica.

EASTER ISLAND

Mary Ann WA3HUP provides news that there are now twelve more licences on Easter Island. The call signs that range from CE0ZIA to CE0ZIK are all Novices. Sam CE0ZIB is the first native islander to be licensed and he is the island's mayor. Also CE0ERY and CE0ZIH are a father and son combination.

ADELAIDE ISLAND VP8ANT

Richard VP8ANT is now back home after a two and a half year stint in the Antarctic. His QSO totals from Adelaide Island were 28 MHz: SSB 510 CW 2268, 24 MHz: CW 116, 21 MHz: SSB 8240 CW 6998, 18 MHz: CW 120, 14 MHz: SSB 10699 CW 5865, 10 MHz: CW 924, 7 MHz: SSB 558 CW 3008, 3.5 MHz: mixed 1006 and 1.8 MHz: also mixed 526 QSOs. In all 40,838 QSOs which is not a bad effort in anyone's language.

Richard is a dedicated amateur because on the way out in October 1981 he made a

handful of contacts from South Georgia, and on the way back between the 24th December, 1983 and the 2nd of January, 1984 he made 365 QSOs on twenty metres from Deception Island in the South Shetland group.

Richard whose home call is G3CWI is an adventurous sort of chap and he may soon be able to meet a few of the VKs that he worked in this period. Richard is contemplating a long vacation bicycling across Australia, from VK6 to VK2 and being QRV whilst mobile on two metres. Not a mean feat to try to accomplish by any means. So if you hear Richard on his travels, please make him welcome with good old "Aussie" hospitality.

Richard has lodged a speculative application with the British Antarctic Survey for the post of radio operator at Grytviken in South Georgia, should it become vacant in the next few years. This would be an ideal DX location for him.

The QSL address still remains the same, PO Box 146, Cambridge, England or via the RSGB Bureau.

TO WHOM IT MAY CONCERN

A strange heading but a letter received from Paul Caboce 3B8AD, the QSL Manager for Alega and St Brandon, Mauritius and Rodriguez Island has just that heading. Paul writes "Among the many batches of QSL cards which are constantly flowing in to my box number for redirection to their respective destinations, I was quite puzzled how to deal with three 3B cards (3B9RS, 3B8ZV and 3B8ZL) which in fact, have never been allocated by the State Administration to overseas radio amateurs wishing to operate during their holiday stay in Mauritius."

The reply in part from the DOC in Mauritius informs Paul that "3B8RS which is the call sign allocated to the Mauritius Amateur Radio Society (MARS) was never allocated to Mr Walter Skudlarek . . . A provisional licence dated 22/10/80 with call sign DJ6QT/3B8 was issued to him to operate an amateur station at Kuvville, Cap Malheureux. He was never authorised to use or print call sign 3B9RS."

"The call sign 3B8ZL has never been issued to someone up to now. The operator who has used 3B8ZL on 9th May 1983 to contact station N7AOP on 14.2 MHz by SSB must be a pirate station . . ."

"Call sign 3B8ZV was not allocated to Mr Don Jones, a USA citizen, in 1980. Only provisional licences were issued to him on 20/02/80 with call signs N6ZV/3B8 and N6ZV/3B9 to operate at Trouaux Biches Hotel and Rodriguez respectively."

"However, on 3rd September, 1979, Mr D Jones was informed by Mr H Nahaboo, the then Acting Wireless Superintendent, that permission had been granted to him to operate a radio amateur station in Mauritius and Rodriguez with call signs 3B8ZV and 3B9ZV respectively."

Paul continues his letter "Further, as QSL Manager, I have to deplore the trivial interest displayed by those radio amateurs having obtained clearance to operate their station with a new call sign whilst spending their leave in Mauritius, but who do not even care to contact or write to me as to the address at which QSL cards are to be channelled if received during their stay here or after their departure from the country."

Thankyou Paul for trying to clear up some

mysteries and stating your feelings which I personally feel is very fair comment but those wanting to catch up with N6ZV who is having similar difficulties with his D88GA and FMOGA operation may care to try Don Jones, PO Box 9, Fort-de-France, Martinique 97251 French West Indies.

UNITED ARAB EMIRATES

Lou A6XYB, is evidently genuine as he is apparently operating from the Palace grounds with government equipment and under supervision of members of the Royal Family. His QSL card carries the following notation "Official provisional operating permission granted".

Lou's equipment comprises a synthesized KW transceiver and a log periodic antenna at 20 metres.

WARC BANDS

A note from Lindsay VK5GZ, has noted that he had a little luck in the latter part of 1983 when he worked DL300 on 18.070 MHz at 1323 UTC. A couple of days later Lindsay reports that he heard a DL1 but a jammer was occupying from 18.080 to 18.050 MHz with an S8 signal. Lindsay soon realised that 1200 to 1400 hours was where the action was if there was going to be a chance into Europe.

Lindsay has "home brewed" a programmable CW CQ caller and this is pressed into service, later models that have been built have many improvements.

Well, the "bait" of the CQ caller worked and such stations as DL7KM, DL2GG, DK8GTD, VU2NCS, OZ2RH, DL1GBZ, HB9ATU, DJ6HF, DL7UB, G3SFZ, G3GRJ, G3KMA, F6BWF, DK7WCY and DL8RLB were logged on the 11th of December. Later in the month GW3AHN and G3GRJ were logged.

The start of the new year saw further activity from Europe and towards the end of January, Lindsay altered his 18 MHz antenna to a full wave dipole at seven metres and the results have been promising, reports varying from 569 down to 539 and at the time of writing twelve countries on 18 MHz and three on 24 MHz have been captured in the log of VK5GZ.

Lindsay quotes "in VK we strive to activate 18.120 and 18.070 MHz at 0100 and 0500 UTC and it is trusted that this will attract more operators on the WARC allocation".

Lindsay, thankyou for your interest and detailed information and please write an article for AR on your super duper automatic CW CQ caller as well as further reports on the WARC Bands.

SEYCHELLES

By all reports a hard one, firstly to work one S79 and secondly to get it confirmed. There are two stations active from this area. S79MC can be found on twenty around 1200 UTC and another is S79WHM. The Manager for S79MC is AK3F and his QTH is Michael Hayden PO Box 573, Gettysburg, PA 17325, USA. Good Luck!

Although not a DX Net, on the South East Asia Net (SEANET) many stations will QSY if the word "CONTACT" is announced by the operator wanting that station when he or she checks in. The Net Controller will nominate a frequency and most operators will QSY on request. SEANET is conducted each day of the year at 1200 UTC on 14.320 MHz +/- QRM.

ALBANIA

Ken G3NBC, reports that ZA2R was operating on the 18th February between 1500 and 1600 UT. Ken reports that he was 5x9 on 14.193 MHz and giving the name Shroki but no QSL information. Was he genuine is the question and the QSL route of EA2AJH was mentioned by some of the "policemen" on the frequency.

MANAGERS

3D2FR-NE4S, 4K1F-UQ2OC, 4K1GDW-UQ2GDW, 4N9YU-YU4FRS, 5T5DX-W2TK, 5T5WN-AK3F, 5W1ET-VE3XJ, 5W1EU-VE3XJ, 6W1CK-DL1HH, 6W1DY-VE3SK, 6Y5IC-KE3A, 6Y5MJ-KBZBY, 7P8CL-SM5GOJ, 7X2BK-F6EWK, 9G1MG-HB9CGA, 9Y4VU-K2QIE, A22ED-K4EBY, A22MT-ZS6BDL, A22PH-A22BX, A22ZM-ZS5CU, AH0A-K4AVU, AH0B-JA2VUP, A22M-N9AVY, AH9AA-KW6H, AP2UR-WBQFR, CE0FQU-DJ9ZB, C3CGN-V3HNK, C53AL-KA2CDE, C8NXC-HB9AGH, CR9WW-JH1AGU, CT2FN-F6BCW, DL1VU/AH8-DB5UJ, EK0D7D-UK3ABO, FM7WS-F2BS, F08D-WB6GFJ, HL9TA-KULST, J88AQ-W2MIG, JY8KJ-G3KPV, LZ0KRB-LZ1KRB, LZ0WCY-BUJO, OA8CB-N4CQ, T8DQ-F6GFR, TR0AB-F6AJA, T2UNW-AK3F, U1A1T-U1AAU, U1APM-UK1AA, U1A1T-U1AAU, Y2AU-CE3ALW, VK9ZW-VK9VU, VP2VA-VE3MJ, Y83ANT-Y44ZK, YS9RYE-WA0JYJ, ZS3E-KBTS, ZS6WCY-ZS6TJ.

DIRECT QSL INFORMATION

457RR PO Box 843, Colombo.

5T5RL PO Box 1256, Nouakchott.
5T5VB PO Box 42, Nouakchott.
81WCY PO Box 96, Djakarta.
A22BW PO Box 76, Francis Town.
A71BJ PO Box 180, Harrow, Middlesex, England.
AH3AA/KH9 PO Box 248, Wake Island 96989.
CE0FQU PO Box 1, Easter Island, via Chile.
CR9CT PO Box 12727, Hong Kong.
T26WFP PO Box 120, Bamako, Mali Republic, West Africa.

WORKED ON THE EAST COAST

14 MHz
3B8FG, 3V8PS, 4K1L, 4N9NY, 457CF, 457NS, 5NBSHE, 7X5KY, 9N1MM, 9N1RNM, 9N1SM, A6ASS, A71AD, A71BH, A71BK, A71BW, A8D0T, AH8/D1VU, AP2UR, BV2A, BV2B, BY4AA, BY8AA, C8DAE, C8C8R, C8EABF, C9IC7, F7A1U, HA0XK, HA0MM, HA5H, HASKN, HA7KLB, HV3SJ, HZ1AB, J28DQ, J21BR, JY1, JY3ZH, KA4RY/DUR, K8SCD, SP2BM, SUIAH, T30DQ, T30CT, T1B, T1B, U050CL, UP28BX, V56DQ, VU2DDT, VU2MAR, W6K/G, HCB, X4US, YB8AX, Y11BGD, YK1AD, Y02BL0, YU1SS, ZC4SR.

21 MHz
A35RF, 6H1UF, G3XKN, G2JLU, HA4ZZ, HR1FC, JA1AWS, JATYAB, JY9CL, OZ1D0A, P29WLD, SP9UC, SV1LK, T30CT, T42AT, T1B, T1B, VK0CK, VK5ZNS, V56CT, XU1YL, YCZDNT.

7 MHz
5W1ET, DURBE, JATYAA, KX6DS, N7FX, T32AF.

INTERESTING QSLs RECEIVED

123A, 45TEA, 7X5AMC, AP2UR, BY4AA, HB9ARE, HK1ANP, I2BVS/BV, JY5CL, K4EUX/KH9, T7V, VU7WCY, XU1SS.

CW SWLING WITH ERIC L30042

26 MHz
DJ3AS, UK2FAA, UA2FFD, UK9AAA, VK2GW, VK2BPN.

VK4CJ, VK4LX, VK4WX, VK6CI, VK2KOP, 4X8GP (1100 Z), Beacons DL0GI (10Z), VK2SR, VK5WI, VK6RTW, V56TEJ.

21 MHz
DL2FV, DJ3HA, FK0AQ, HA7KSR, KH6SP, OH5RH, P29BR, T71TA, UK2FAA, UJ8JCQ, V56HI, VU2LO, VU7WCY/TS, YC4FNN, ZS6RD, 457EF, OH6P/AU, ZK5ZFR.

14 MHz
A4KPS, W6K/GCP, CX4CO, CN8BJ, DU5M, DJ6BN/EA6, FK0AQ, FO8JR, G4FOC, HA1KSA, H2VPM, HL0C, H4CZK, KOAK/KH2, KP4HA, L2EMK, PA0GT, P29KY, SM10IE, UABURF, KH6DA/P, V56HI, YB0TK, YV5JHS, ZK1DA, SW1DQ, SW1EU.

10 MHz
DJ8FS, ED2DSS, F3NB, G3AAK, JA6GU, KP2J, OZ2RH, T30AT, T32AF, W1JF, N4SU, W5A2XZ, ZL1AOM, SW1DQ.

7 MHz
AH2G, AH8/D1VU, F2MA, H4SKDQ, HL4MK, HZ1AB, IH8FE, KX6DS, KX6OH, LX1PD, LZ2KRU, P29MR, UBS1RM, VK5PH, VU7TTC, V55KL, Y06AKN, YU1EYK, 4N5VU, 409Y, SW1DQ.

3.5 MHz
HA3MY, HA1VU, H6GN, JA4YHF, H6BR, LZ2CJ, SM7EXE, UK5PFC, UK6LTA, VK8XN, VK9NS, SW1DQ.

1.8 MHz
KH6DC, T32AF, VK2SA, VK4XA, VK9NS, ZL3GQ.

INTERESTING QSLs RECEIVED
A3XXK, A4XJP, FSKAN, G0FOGQ, SV1LV, VP9LB, V56HI, XU1SS, Z2KH, 3B8FG/3B9, 9M2GZ (10 MHz), DL1MK, DL7W9, DL6WR, ZS6ZCQ, OZ1AUX, OZ1CAR, Y39XO.

THANKS

This column has been put together by the efforts of a number of Australian amateurs including VK2PS, EBX, 3BY, FR, YJ, YL, 5GZ, AKH, 6FS, NE, 9ZW and SWL L30042. Overseas amateurs include G3NBC, IBSAT, ON7WW, W43HUP, ZL1AMM and AMN. Magazines which have been researched for information include cQDX, QST, 73, RSGB NEWSLETTER, ARRL NEWSLETTER, KH6BZF REPORTS, GRZ DX, VERON and WORLD RADIO. Sincere thanks to one and all. Good DXing and QSL receipts.

AR



INTERNATIONAL NEWS

"BIG RED ONE" SPECIAL EVENT

On 19th and 20th May, 1984, Armed Forces Day Weekend, the Wheaton Community Radio Amateurs, Inc will conduct a special event from the First Infantry Division Museum "Cantigny" in Wheaton, Illinois.

The Special Event Call will be N98RO. The 24-hour long event will be on all bands, beginning at 1700 UTC 19th May, 1984. Frequencies will be 50 kHz up from the bottom of the general phone bands and 25 kHz up from the bottom of the Novice bands. RTTY on 14.087 and 21.087.

Certificate via WCRA, PO Box QSL, Wheaton, IL 60189. \$1 or 5 IRCs.

FREQUENCY: USB 28.550, 21.400, 14.275, LSB 7.275, 3.910, CW 28.025, 28.125, 21.050, 21.125, 14.050, 7.050, 7.125, 3.550, 3.725 MHz.

AR

RAS

The Radio Amateur Society of Thailand holds regular monthly meetings to which all foreign radio amateurs and SWLs visiting Bangkok are invited to attend.

The club's committee is pleased to inform anyone who may be visiting Thailand during the first Sunday of any month that the society now meets at the Singha Bier Haus on Asoke Road.

An excellent buffet luncheon is provided

and meetings begin at 11 am. A feature of the meetings is usually a talk or demonstration related to amateur radio, as well as the usual informal get-together.

AR

AUCKLAND VHF GROUP INC

The Auckland VHF Group (Inc) was formed twenty seven years ago by a group of radio amateurs around Auckland, to specifically promote and foster interest in, study and research of, and the utilisation of the then relatively new area of the radio spectrum above 100 MHz.

Twenty five years ago this April, we hosted the first National convention in Auckland, at which the late Professor Kreihsheimer, from Auckland University's new established Radio Research Centre was the guest lecturer — the topic "Anomalous VHF Propagation".

In subsequent years the convention expanded in Auckland, then moved around other centres in New Zealand, returning periodically to Auckland.

To celebrate the Silver Jubilee (25th) Convention Auckland is again the host group. This convention spans three days over Easter 20th - 23rd April being held in the excellent facilities of the Auckland Teachers College, Epsom, with Keynote addresses, a wide range of trade and technical exhibits, a variety of speakers lecturing on subjects such as

Amateur, Meteorological, Weather, and TV Broadcasting Satellites, their utilisation and development, Antenna systems and measurement, EME and long distance propagation on UHF and Microwave frequencies, low noise amplification using GaAsFETs, Digital and Packet communications etc.

In addition some special social activities, and an alternative programme of interest for wives and families are offered.

Any VK amateurs visiting NZ at this time would be most welcome.

Irving Spackman
Vice-President, 1984, ZL1MO

AR

HELP INTRUDER WATCH



Special Lift-out Log Sheet to get you started.

Turn to centre pages.

DO NOT WASTE THIS OPPORTUNITY!!!



ALARA

Australian Ladies Amateur Radio Association

Margaret Loft, VK3DML
28 Lawrence Street, Castlemaine, Vic 3450

Another month... is gone, apologies for no notes last month but it has been very hectic so far this year.

We are delighted to welcome the following new members to ALARA

Candy VK4NES 5.1.84; Gerry KD7RA 19.1.84; Jeanne KA3CEO 19.1.84; Anne ZL2BOV 23.1.84; Inge PY2JY 28.1.84; Nona WA8CXF 30.1.84; Mizuyo JE6JQC 30.1.84; Shirley WD8MEV 1.2.84; Barbara VK3BYK 1.2.84; Jessie WA6OET 17.1.84; Laura VK7NYL 2.2.84; Karin LA8UW 20.2.84.

Also Dorothy Jacobsen on 28.1.84 an associate member, another member as a result from the article in *New Idea*.

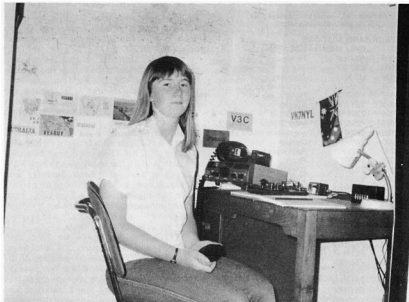
ALARA's membership now stands at 195; 112 Australian members and eighty three overseas YLs, this is certainly a good omen for ALARA's continuation.

We have lost a few of our earlier members and we wish them well and thank them for their support of us.

Valda VK3DVT our treasurer would be pleased to hear from YLs who would like to join ALARA; address is PO Box 4, Middle Brighton, Vic 3186. Remember if you have not paid your membership by now there will be no newsletter sent to you this month.

MILDURA GET-TOGETHER

Approximately forty have indicated they will be attending the weekend, Marilyn VK3DMS is in charge of arrangements and a good weekend is planned for our first get-



together. See Marilyn's photo page 9 last month. If you would like more details write to Valda at the above address.

On Sunday 19th February at the Midland Zone Convention the following YLs were

present, Joan VK3NLO, Jenni VK3KEI, Michelle VK3NSU and myself.

Photo this month is of Laura VK7NYL one of our new members.

Until next month 73/33/88 to all.

AR

MAGAZINE REVIEW

Roy Hartkopf, VK3AOH

34 Toolangi Road, Alphington, Vic 3078

(G) General, (C) Constructional, (P) Practical without detailed constructional information, (T) Theoretical, (N) Of particular interest to the Novice.

RADIO COMMUNICATION February 1984
Narrowband Interdigital Filter Design, (TP).

QST December 1983. HF Propagation. (N).
Transmission lines. (N).

QST November 1983. Home brew CW rig. (CN). Resistors. (N). Dual Frequency Antenna Traps. (C). Tropospheric Scatter. (GN).

73 MAGAZINE, February 1984. All Band Antenna. (C). Digital Readout for the FT 101.

HAM RADIO December 1983. Transformer Oil Health Hazard. (G). Photovoltaic Cells. (G). 1979-1983 Index. (G).

AR



QSP

EMC — A WORLD-WIDE PROBLEM

... Pat Hawker, G3VA, who is one of Britain's top technical journalists, illustrates, in *Wireless World*, November 83, the seriousness of the ever increasing EMC problems in the UK.

Pat says radio operation from residential areas is facing increasing difficulties from a wide variety of old, as well as the rapidly rising new EMC problems. These range from long standing electrical interference to a host of new problems arising from such items as: TV add-on equipment, including video cassette recorders, video games, home computers etc.

It seems that UK amateurs will soon have to face the problems of Cable TV that, in the USA, is proving a major problem. This is due to radio frequency leakage into and out of the cable that often distributes TV programmes on frequencies that include the amateur VHF bands.

The use of video cassette recorders is proving particularly difficult as most of

these have wideband amplifiers and inadequate shielding of the tape head amplifier.

Although most EMC problems arise from the shortcomings in domestic equipment, members of the Amateur Radio Service face social problems if they persist in using their blameless equipment when neighbours complain.

"Amateurs, world-wide, have been attacking authorities and government departments for years about the growing EMC problem and the devastating effect on high-technology of ignoring this problem... VK3QQ."

AR

RESULTS OF NOISE BRIDGE COMPETITION

Many entries were received in the competition for the KB Noise Bridge (refer page 31, January AR) and the winning entry drawn by the Editor of AR, Gil VK3AJU was

T J Beckmann VK4KTJ,
Pinjarra Hills, Qld 4069.

The correct answer was 166.7 volts.

AR



All times are Universal Co-ordinated Time,
and indicated as UTC

AMATEUR BAND BEACONS

| FREQ | CALLSIGN | LOCATION |
|----------|----------|----------------------|
| 50.005 | H44HIR | Honiara |
| 50.008 | JA21GY | Mie |
| 50.020 | GB3SIX | Anglesey |
| 50.060 | KH6EQI | Pearl Harbour |
| 50.075 | V86SIX | Hong Kong |
| 50.945 | V5T1SX | South Africa |
| 51.020 | ZL1UHF | Auckland |
| 52.013 | P29SIX | New Guinea |
| 52.150 | VK0CK | Macquarie Island (1) |
| 52.200 | VK8VF | Darwin |
| 52.250 | ZL2VHP | Palmerston North |
| 52.300 | VK6RTV | Perth |
| 52.310 | ZL3MHF | Christchurch |
| 52.320 | VK6RTT | Carnarvon |
| 52.350 | VK6RTU | Kalgoorlie |
| 52.370 | VK7RST | Hobart |
| 52.420 | VK2RSY | Sydney |
| 52.425 | VK2RQB | Gunnedah |
| 52.440 | VK4RTL | Townsville |
| 52.465 | VK6RTW | Albany |
| 52.470 | VK7RNT | Launceston |
| 52.510 | ZL2MHF | Mount Cimlie |
| 144.019 | VK6RBS | Busselton |
| 144.420 | VK2RSY | Sydney |
| 144.465 | VK6RTW | Albany |
| 144.475 | VK1RTA | Canberra |
| 144.480 | VK8VF | Darwin |
| 144.550 | VK5RSE | Mount Gambier |
| 144.600 | VK6RTT | Carnarvon |
| 145.000 | VK6RTV | Perth |
| 147.400 | VK2RCW | Sydney |
| 432.057 | VK6RBS | Busselton |
| 432.410 | VK6RTT | Carnarvon |
| 432.420 | VK2RSY | Sydney |
| 432.425 | VK3RMB | Ballarat |
| 432.440 | VK4RBB | Brisbane |
| 1296.171 | VK6RBS | Busselton |

(1) David VK0CK has indicated in a message to me that with the completion of a new antenna for the riometer at Macquarie Island, the original interference problems should be overcome and this will allow him to operate his station on a more regular basis on 6 metres with a consequent increase in attended operation for the beacon. David uses the reception of television stations from New Zealand as good pointers for enhanced conditions and Es- and as he does this on a regular basis there exists a much better chance now for those who have not worked him to do so. The beacon runs 10 to 15 watts to a 4 element beam pointed towards the eastern coastal regions of Australia which should give a relatively broad coverage over a large area of the country.

THE VICTORIAN SCENE

Doug VK3UM has written a long newsy letter and the relevant points are included here for your interest. For those of you who do not know, Doug has been interested in VHF for a long time, firstly as VK5KK, then VK8KK where he did much to get VHF going in the Darwin area, and now VK3UM.

"Just what is DX on 2 metres? More to the point, how far can you work regularly in any day, any time? Given 400 watts PEP out, 0.5 dB

VHF UHF - an expanding world

Eric Jamieson, VK5LP
1 Quinns Road, Forrester, SA 5233

NF in the receiver, and 20 dB gain in the antenna system at both ends, then all you need to do is consult the theory books and come up with 700 km as a fair estimate! Thus contacts to Griffiths/Millicent/Sydney are regulars, particularly the former two. We are talking 144 and 432 MHz and I consider John VK2YEZ as an extended local, signals are always S3 or greater. John VK5DJ also always workable but variable due to coastal if not a little inland path.

"All this finally came home in December when the 4CX250s were brought on line with Gordon VK2ZAB. The extra output 'balanced the path' and it's fair to say we can now work practically any time. Each Saturday and Sunday schedules have produced for periods up to ten minutes ragchew type copy, from aircraft enhancements etc. Problem is though with such EIRP the RFI is horrific and severely limits the usability of the mode.

"144 Es into Melbourne on 23rd, 25th December and 13th January, the latter being so solid one felt you could have walked on it! I am not an E lover as I tend to reflect back on the many hours of work to upgrade the station to a point only to find that a 'handbag and whip antenna' does nearly as well! (I agree, on any sustained opening either Es or tropo will bring out a lot of operators from the woodwork who grab some contacts, which is their right of course, but they do little to sustain the band during the periods between, if the bands were left to them there would never be any such operation... 5LP.)

"Es periods are certainly more 'active' than one first believes. Throughout December and January, Gordon VK2ZAB and I have noted S9+ 'blocks' of five to thirty seconds bursts during many of our skeds. I use the word 'block' to differentiate from meteor pings which always provide a background. Of course, during good 2 metre openings, signals can be 9+ for thirty seconds and gone at your QTH but be 9+ five miles distant.

"Les VK3ZBJ and I are 50 km apart and have devised a system of calling alternatively at ten second intervals. On making a contact we shifted off 144.100 MHz up band and had our QSO up there. It is a pity some others do not do the same. A classic example was a VK4 on 144.1 at S9+ for two hours on 13th January who completely ruined the band for any others who might be able to work other interesting areas. He just hogged the frequency and obviously didn't care who else was operating! (Doug has informed me who the operator was, and so have some others, and I have had similar complaints regarding 52.050 from the same operator. I am now looking for him with my tape recorder, after which his call sign will be published in these notes!... 5LP.) We would have liked to try for VK8 under such conditions, but what hope did we have? However, out of all of it, I confirmed that backscatter E is possible. I heard Gordon working VK4YLB on definite backscatter, not a big deal but for me a first observation."



Doug VK3UM at his operating desk.

Photograph by Ken McLachlan VK3AH

EME FROM MELBOURNE

Doug VK3UM also reports having "cracked" it on 144 MHz from a suburban location, with all solid state equipment. First contact was on 27th November, 1983 with Lance WA1JXN and completed in the minimum of time. Following completion of the previously mentioned amplifier he has contacted YU4USA (answered his CQ), VE7BOH and W5UN as scheduled, and WA1JXN, second contact. About twenty others have either been heard or half QSOs. Good work, and our congratulations Doug.

Doug says it is not much problem to work a station with 26 dB of antenna gain and 500 watts, but those he is working are mostly 8 or 12 bay arrays, and being twice or three times as many as those Doug has depending on the station. Faraday rotation is the main problem on 2 metres and for that reason it is not always possible to hear your own echos but QSOs are often possible with other stations.

On 20th January, 1984 Doug had about ten minutes of continuous echos up to S1 off the moon! This despite the fact of not being able to elevate the array giving an effective window of 2 to 7 degrees of elevation, about eighteen minutes of contact time.

Apparently the recent EME Contest Weekend produced considerable QRM on 144 MHz, partly brought about because stations were not spread out enough, and activity virtually has to be confined to the first 100 kHz because of QRM from other land based stations, and bearing in mind that the first 100 kHz in USA and Europe is for CW DX!

IMPROVED PRE-AMPLIFIERS

Doug has been trying out MGF1202 preamps on both 144 and 432 MHz and both give between 0.45 and 0.51 dB NF when measured on the Hewlett Packard Noise Analyser, an automatic device. Echos which could not be detected with the former 0.8 dB preamp are now detectable on the 0.45 device! Further improvements would be possible by putting the preamp at the feedpoint and cutting out the 0.3 dB helix loss. He asks "Where do you stop? Every 0.1 dB has been noticeable and the results verified on the path to Gordon VK2ZAB. Consistent contacts are now possible on both 144 and 432 with VK1BG."

MELBOURNE TO SYDNEY ON 432

On 8th January, 1984 between 2305 and 2400 a contact with Gordon VK2ZAB on 432 MHz took place with signals 4/5 by one each way and believed to be the first Melbourne to Sydney contact on that band. Gordon was running 10 watts. Congratulations once again, the efforts of both of you have paid off. I wonder what will happen when Doug gets up his EME array of 16 ATN long yagis shortly!

CONTACTS FROM MELBOURNE

The following shortened list gives some idea of the type of contacts available if you are keen enough. Almost all are around 2200 and 2300 UTC and signal strengths reports are 5x1 to 5x5, sometimes higher. What is important is the fact that the contacts are consistent which you will note as you read on.

All contacts with VK3UM: 21st October, 1983: VK2YEZ (144 to 432 duplex); 22nd

October: VK5DJ, VK3BVS, VK1ZQS, VK1RK, VK1BG, VK2ZAB; 23rd October: VK1ZIF, VK1RK, VK2QP, VK1BG, VK2ZAB; 25th October: VK1CJ, VK1ZQS, VK1KAA; 27th October: VK5ZDR; 29th October VK5DJ, VK2ZAB, VK1RK, VK1BG, VK1KAA, VK2QP and VK1BG on 432 MHz as well; 30th October: VK2QP, VK1VP, VK2ZAB.

5th November: VK5DJ, VK2ZAB, VK1RK, VK1BG, VK1CJ, VK1KAA and VK1BG on 432; 6th November: VK2ZAB, VK1ZIF, VK2QP, VK1KAA and VK1BG on 432; 9th November: VK3VL on 432; 10th November: VK5DJ, VK5MC; 12th November: VK4LC heard via meteor working VK2ZAB, VK5DJ, VK5MC, VK2ZAB, VK1RK, VK1CJ; 13th November: VK2ZAB, VK2YEZ, 144 and 432; 15th November: VK3BHS; 19th November: VK5DJ, VK1RK; 20th November: VK2ZAB, VK1BG, VK2YEZ; 26th November: VK5DJ, VK2ZAB, VK1RK, VK1VP; 27th November: VK2ZAB; 28th November: EME weekend, band a mess! VK2YEZ and VK3VL, both 144 and 432.

3rd December: VK5DJ, VK2ZAB, VK1VP, VK1BG, also on 432; 4th December: VK1VP, VK2ZAB, VK1RK, VK5ZDR, VK5NC; 10th December: VK5DJ, VK2ZAB, VK1BG, VK1CJ; 16th December: VK3VL, VK2DFC; 17th December: VK5DJ, VK5ZDR, VK2ZAB; 18th December: VK5ATD, VK5NC, VK2ZAB, VK1KAA; 19th December: EME contacts; 21st December: VK5NC, VK5DJ; 22nd December: VK3VL; 24th December: VK5ATD, VK2ZAB, VK1BG, also 432; 25th December: VK5NC, VK4YLG 5x9 on Es; 31st December: VK5DJ, VK2ZAB, VK1BG.

2nd January, 1984: Long series of tests with VK2ZAB; 7th January: VK3AOS, VK5DJ, VK5ZK, VK5ZDR, VK2ZAB, VK1CJ, VK1BG, VK2QP, VK1RK, VK1BG (432), VK5ZO; 8th January: VK5ZDR, VK2ZAB, VK1CJ, VK1KAA, VK2QP plus the first 432 contact Melbourne — Sydney with VK2ZAB, VK1VP; 9th January: VK5ATD, VK5DJ; 12th January: VK5MC, VK6XY (5x5 for two hours only to VK3UM), VK5DJ; 13th January: Es contacts to VK1, VK2 and VK4 with a great number of contacts, many 5x9; 14th January: VK5DJ, VK2ZAB, VK1CJ, VK1RK, VK1BG; 15th January: VK2ZAB, VK1BG, VK1CJ, VK2QP, VK1ZAG; 17th January to 21st January: EME keds, not overly successful until worked YU4USD on 144.008 between 2100 and 2200. A large dogpile on 144.010! On 21st January also worked VK2ZAB, VK1RK, VK2QP, VK1KAA, VK1ZIF, and 0110 worked VE7BOH on 144.035 EME; 22nd January: W5UN on EME with solid copy. 24th January to 30th January went fishing and umpling softball at Leongatha!

If it does nothing else the listing of those contacts should help to bring out a few more operators who have the time to spare in the mornings. The wide range of areas covered shows quite a high level of activity particularly on 144 in the eastern States, and certainly pushed along by the earlier efforts of VK2ZAB.

THE NEW SOUTH WALES SCENE

Gordon VK2ZAB, who has been consistently mentioned in the notes from Doug VK3UM, has sent along further information, this time more in narrative form, and I have taken out the relevant parts which should be of interest to readers.

"The exceptional 2 metre openings on Es and tropo reported for December and January

bringing the number and extent of Es openings in particular, to unprecedented levels.

"The month started quietly enough in Sydney, with country contacts into Sydney from VK2ZMG (Ebor) and VK2MX (Cooma). Several VK1s active, plus VK3UM, VK4LC came up on schedule and was copied briefly a couple of times.

"On 6th January VK3UM was above average and good copy most of the time over a period of seventy minutes, reaching 5x5. Also contacted Les VK3ZBJ at 5x3."

FK8 ON TWO METRES

Gordon continues: "On 8th January, 1984 at 2350 VK2ZGB advised that VK2DDG in Byron Bay was hearing FK8s on 2 metres. Turning the beam and FK8 was heard! The next hour was very frustrating with FK8 stations being heard in intermittent bursts, called and not heard to reply only to be heard again later calling VK2ZAB! I later learned I was heard by Henri FK8EB in his car and by Henry FK8AX.

"On 9th January at 0108 firm contact was established between VK2ZAB and Pierre FK8EM at 5x6 both ways. Later Eddy FK8CR was contacted at 5x3 and Robert FK8AH 5x7 both ways. Kerry VK2BXT was heard for lunch at this time and worked the FK8s as did Ross VK2ZRU and VK2DE. Adrian VK2EDB tried on CW with some success. FK8CR also worked Doug VK2DXH at Uralla and another VK2 in the north of NSW.

"With such an Es opening to talk about we could have had a break for a while but on 13th January the most extensive and intense Es opening in memory occurred when VK4s worked into VK1, VK2, VK3 and VK5 with over S9 signals for several hours. VK2ZAB worked VK4BWM, VK4KNW, VK4RO, VK4YLG, VK4ZWH and VK4BKP. Signals were from 5x2 to 5x5.

"Signals from VK4 to VK3 were very strong, also very strong to VK5. Even the lower powered stations in VK3 were much stronger in VK4 than the high power stations in Sydney. (Optimum distances come into it here...SLP.) At 2045 on 13th January VK4LC was 5x2 here briefly and VK2DDG 5x3, both tropo enhancement.

"Es occurred again on 2 metres on 21st January from about 0540 to 0900 UTC when several Sydney stations worked ZL1, ZL2 and ZL3. VK2ZAB worked ZL1THG, ZL1HR, ZL1BFO, ZL1TAX, ZL3AFN, ZL2ARW and ZL1TWR. Signals varied from S3 to S8. David VK2BA worked a couple more ZL3s.

"Exciting and interesting as these contacts are we should not lose sight of the fact that this type of DX does not require much more than the ability to be there at the right time, and that although some talent may be required to pick the right time and to be there only then, this talent is easily mastered by being there all the time. Not everyone can do that.

"Weak signal DX however is a different matter. This requires high power, large antennas, low noise receivers and a good location. It also requires a great deal more talent and although the results obtained may not be quite as spectacular we should recognise it as being deserving of higher praise than the being there type of DX. VHF Contest organisers please note!"

It is fitting Gordon should finish with his comments in those last two paragraphs, they are certainly wise words and might well be considered by and sundry.

EME IN RUSSIA

David Rankin 9V1RH/VK3QV, who is Director Chairman of the IARU Region III Association, and currently living in Singapore has sent some news of experiments and contacts on EME in Russia, with the translation from the Russian language being made by Dexter Anderson, W4KM.

"An extract from 'EME - QSO' by S Bubenikov, originally appearing in 'Radio No 8/83' - journal of RSF, USSR.

"... But the most interesting information came in from UA3LBO. For the time being, he is the only one in the USSR to operate via the moon on 430 MHz. On the 3rd December, 1982 he had regular QSOs with West German and Yugoslavian stations, WB5LUA, and finally ZL3AAD from New Zealand. The last contact is the longest in the country - 16 900 km.

"Gusts of wind shook the antenna, and the moon continually 'hid' outside of the directivity diagram. This prevented UA3LBO from having other contacts with VK5MC, OH6NM, G4DGU, YV5Z2 and others.

"Lately, UA3MBJ has been most active on EME - he has had fifty eight contacts on 144 MHz. His most interesting contact to date took place on the 29th March, 1982 when without a preliminary agreement, he succeeded in having a QSO with VK5MC in Australia."

Thanks for writing David, its good to read about the activities going on in other countries, and congratulations to VK5MC and the other operators who were successful in making the various contacts.

NSW MOONBOUNCE REPORT

Lyle VK2ALU in "The Propagator" reports on a few interesting aspects in getting their newly put together dish going satisfactorily, and reports:

"Antenna radiation pattern was plotted by means of the chart recorder, following repairs to its chart drive motor by the University. The main lobe was confirmed as 2 degrees wide at its half power point and was found to be 4 degrees wide at the 10 dB down point. Sun noise was a maximum of 15 dB above the cold sky noise.

"A series of checks of the transmitter output frequency showed the 144/1296 MHz transmitter mixer crystal is 12 kHz low at 1296 MHz. The 144 MHz exciter VFO was recalibrated to compensate for this error and now provides a tuning range of 1295.995 to 1296.027 MHz.

"An automatic keyer which transmits 'CQ de VK2AMW' has been completed. It will release the operator for other checks during the calling periods.

"Further checks and echo tests confirmed the dish is still to be pointed at the moon with an accuracy of plus or minus half a degree in order to receive echoes. Under these circumstances visual alignment on the moon is essential as pointing under remote control is accurate to only plus or minus one degree at the best.

"Scheduled 1296 MHz EME tests were carried out with G3TLF and OK1KIR on 22nd January, 1984. We were delayed in getting on

due to a defect in the 144 MHz frequency source, introduced during modifications completed on the previous day, and inability to see the moon through the cloud cover until some ten minutes beyond start of skip period. G3TLF was not heard during his scheduled period and was not heard until twenty minutes into the following period of OK1KIR's schedule, when he was copied underneath OE9XXI. M reports were sent to G3TLF. No contact made with OK1KIR."

MACQUARIE ISLAND QSL ARRANGEMENTS

Repeating what was written last month for those who may have missed the item, Claims for QSL cards for 6 metre contacts with VK0CK are to be sent to me, VK5LP, via the address at the heading of this column, and to include a stamped addressed envelope for the return QSL. IRCs will be accepted from stations overseas. I now have all required details covering eighty one contacts made by David on 6 metres. Some operators have already sent QSLs to David's home address (VK5CK) and I will be picking these up shortly and processing them in the usual way.

On the question of HF contacts, a original note was included in the DX columns of "Amateur Radio" saying Keith Gooley would be handling those cards. I understand Keith is on extended leave at present, so it is unlikely anything much will be done from there for a while. I am prepared to handle HF cards under the same conditions, and as the cards appear on my desk the relevant information will be obtained from David for QSL purposes.

OPERATING FROM WILSONS PROMONTORY

Mark VK3PI was formerly concerned with the production side of "AR" and has only recently turned to VHF and in particular 6 metres. Taking his brand new IC505 he investigated the DX possibilities of Mount Oberon on the Peninsula, necessitating walking to the top on 20th January, 1984. At 2330 he heard VK3AZY working VK3VD. At 2339 he called VK3VD only to find that batteries in the IC505 were rather flat and after much F'ing by the rig, arrangements were made to try again the next day.

So again a trek up the mountain, this time with an FT290R, plus spare battery pack! At 2330 worked VK3VD on 14.1 and 52.050. Mark states "Perhaps all this was not a great achievement, but to me not having worked anyone on 6 metres it was!" Subsequently, the 3 watts from the IC505 got as far as VK4ALM at 5x5 and with the batteries now running down again, power was limited to 100 mW. At 0231 worked VK4ABP at Longreach on 100 mW. So that was three stations and obviously a great thrill for Mark.

He trekked up the mountain again on 25th January and heard nothing! On 28th January another trek and heard VK3RMV 5x3 on 52.435, and VK2QF working VK7ZAR, then VK2AKU working VK7ZAR. Mark finally got a contact with Stan VK3VD portable at Allenby Reserve, on 02.050. Being a devil for punishment Mark climbed the mountain again on 28th January but no luck. In all he spent ten hours walking to and from the mountain and at least eighteen hours on the top waiting to work something!

Despite all this, Mark says he is well and truly hooked on 6 metres and will be trying again later with a beam antenna, and more batteries. Good luck Mark, you will find much to keep you going on an interesting band.

SIX METRE STANDINGS

Well, I knew it would happen. The publication of the first list of 6 metre standings has prompted some others to get their lists together, so the next 6 metre box about August promises to have quite a few new call signs listed. And remember, no cheating! Confirming 50/52 MHz contact information on 10 metres is against all the rules. I will be checking out everything I can but there are bound to be some claims not strictly fairly substantiated. If glaring examples do appear and proof can be shown then I have no objection being informed of what has gone on and will initiate my own investigation. So beware!

FINALLY

The usual batch of 2 metre and 432 MHz contacts have been going on across The Great Australian Bight between Adelaide and Albany during the past month. Of course this is nothing really new, with the improved equipment and antenna systems it is now relatively easy for those on the Adelaide Plains in particular to work with 5x9 signals on both bands, and 1296 MHz contacts are not uncommon. What we are interested in are those contacts being made on 2304 MHz and the attempts on 3500 and above. Not much is heard about these but the attempts are going on and one day we will have something very interesting to report I am sure.

Closing with the thought for the month: "Keep in mind that even if you're on the right track, you'll get run over if you sit there." 73. The Voice in the Hills. **AR**



QSP

ARABIAN GULF FOOTBALL TOURNAMENT - 1984

From the 9th March, 1984 to 26th March, 1984 the countries of Bahrain, Iraq, Kuwait, Qatar, United Arab Emirates, Saudi Arabia and Oman participated in this special event. Stations which took part in this event signed their normal call sign followed by /GFT - Gulf Football Tournament.

The Royal Omani ARS produced an award for interested amateurs who worked five A4X stations with the special suffix/GFT, during the above period.

Sent certified log extract confirming the five contacts and ten IRCs or equivalent to Awards Manager, ROARS, Box 961, Muscat, Sultanate of Oman. **AR**

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AWARDS

Mike Bazely, VK6HD
FEDERAL CONTEST MANAGER
8 James Road, Kalamunda, WA 6076

Not much to report this month though there are details of awards from Denmark, Italy and Switzerland.

From VK3YJ comes details of the "MARCO POLO" award for which the main requirements are listed below:

THE MARCO POLO AWARD, SUMMARY OF RULES

- The award is available to licensed amateurs and SWLs.
- The contacts must be with countries listed below.
- All modes are acceptable though cross-band contacts are not allowed.
- One QSO per country, the operations of which must be valid for ARRL DXCC.
- All contacts must have been made after 1st January, 1978.
- The award is issued in five classes:
1 — Base award, at least 60 points — three colour diploma. 2 — Silver award, at least 80 points — diploma and shield. 3 — Gold award, at least 95 points — diploma and shield. 4 — Honour Roll, at least 110 points — diploma and medal. 5 — Top Honour Roll 125 points — diploma and medal.
- Send list of full QSO details to: IRLQI, PO Box 19, 88100 Catanzaro, ITALY. The QSO details can be verified by two other amateurs who should be current DXCC or WAZ members. Alternatively photo copies of the QSLs (both sides) are acceptable.
- The cost of each award is \$5.00 (this includes return mail) and each endorsement costs \$1.00 plus SAE. Endorsement applications should be accompanied by a new general list and the number of the diploma already held.
- False documentation etc are sufficient reasons for disqualification.

LIST OF COUNTRIES

| Area or country/ies | Prefixes | Points |
|----------------------|----------------------|--------|
| Central Greece | SV4 | 4 |
| Israel | 4X4, 4Z4 | 1 |
| Syria | YK | 4 |
| Iraq | YI | 4 |
| Iran | EP | 4 |
| Turkey | TA | 3 |
| Armenia | UG6 | 3 |
| Azerbaijan | UD6 | 1 |
| Georgia | UP6 | 1 |
| Turkmenistan | UH8 | 2 |
| Uzbek | UI8 | 2 |
| Tadzhik | UJ8 | 2 |
| Kirghiz | UM8 | 3 |
| Alma Ata | UL7G- | 3 |
| Mongolia | JT | 7 |
| China | BY | 15 |
| Taiwan | BV | 10 |
| Djibouti | J2 | 2 |
| Malai | 5H0 or 5Z4 | 3 |
| Madagascar | SR8 | 6 |
| Kuanguing | CR9 or VS6 | 6 |
| South Korea | HL | 2 |
| Japan | JA | 1 |
| Malaya | 9M2 or 9V1 | 5 |
| Bay of Bengal | XZ or S2 | 10 |
| Gulf of Siam | HS or NU | 5 |
| Tibet and Himalaya | 9N or AS1 | 10 |
| Gujarat (West India) | VU | 8 |
| India (less Gujarat) | VU | 2 |
| Sri Lanka | 457 | 2 |
| Sumatra | YB4.5 or 6 | 2 |
| Borneo | YB7, VS5, 9M6 or 8 | 6 |
| Java | YB0, 1.2, or 3 | 2 |
| Yemen | 4W or 70 | 8 |
| Oman | AX4 | 3 |
| Persian Gulf | A6, A7, A9, 9K or H2 | 10 |
| Ethiopia | ET | 10 |
| Somalia | TS, 60 | 7 |
| Zanzibar, Pemba | 5H1 | 7 |

THE FAIRYTALE AWARD

The "Fairytale" award is issued by the amateurs of the town of Odense in Denmark. The award is to commemorate the writer, Hans Christian Andersen's association with the town. The relevant details of this award are as follows:

- Nine contacts are required, one with each OZ call area 1-9, with a minimum of three being from the town of Odense. (Club station OZ3FYN can replace any missing call area.)
- Only two way CW contacts since 6th December, 1967 count.
- All bands from 3.5 MHz upward count.
- Minimum report accepted is RST 3 3 8.
- GCR rules apply and a confirmed list of contacts should be sent to: OZ7XG, E Hansen, 14 Sophus Bauditz Vej, 5000 — Odense, Denmark.
- The fee for this award is 6 IRCs.

THE HELVETIA AWARD

A very colourful award is available from the award manager of the Swiss Amateur Radio Union. This award is not easy to achieve as it requires confirmation from the twenty six Swiss Cantons. Some of these Cantons have very little activity and the only way to secure contacts is during National contests or Field-days.

The award is free but it does require that the applicant forward the QSLs to the award manager together with sufficient postage to cover the cost of the return of the QSLs. The list of Cantons is as follows: (the abbreviations are used in contests)

Aargau (AG), Appenzel Inner Rhoden (AI), Appenzel Outer Rhoden (AR), Berne (BE), Basle County (BL), Basle City (BS), Fribourg (FR), Geneva (GE), Glaris (GL), Grisons (GR), Jura (JU), Lucerne (LU), Neuchâtel (NE), Nidwalden (NW), Obwalden (OW), St Gall (SG), Schaffhausen (SH), Solothurn (SO), Schwyz (SZ), Thurgau (TG), Ticino (TI), Uri (UR), Valais (VS), Zug (ZG), and Zurich (ZH).

Applications for this award should be sent to: HB9MX, Strahlwegweg 28 8400 Winterthur, Switzerland.

Well that is the lot for this month, in the meantime, good hunting, 73 es DX de Mike VK6HD.



MARCH'S BEST PHOTOGRAPHS



Again this month we have a divided decision by our judges. Waverley Offset Printing Group selected Madeline tuning the rig — page 19. Quadricolor Industries Pty Ltd selected Paul Watkins page 24 and Agfa-Gevaert chose the group of photographs by VK3WW used to illustrate his article. These photographs will now be considered for the Agfa camera prize in June 1984.

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• Caburg 383 4455 • Frankston 763 9144 • Geelong 33 6796 • Melbourne 67 3834 • Richmond 428 1614 • Springvale 547 2922
• QLD • Brisbane 228 9377 • Bundamba 391 6233 • Cherriside 359 6255 • Southport 32 9863 • Townsville 36 4336
• Townsville 72 5122 • SA • Adelaide 212 1982 • Darwin 298 9977 • Enfield 262 8088 • HIA • Gawler 451 8966
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POUNDING BRASS

Marshall Emm, VK5FN
GPO Box 389, Adelaide, SA 5001

This month I'd like to present some of the correspondence I've received on the subject of Interrupted Continuous Wave (ICW) and Modulated Continuous Wave (MCW) transmissions. The letters were a result of the December column, in which I reproduced a circuit for ICW transmission based on an 807 and buzzer.

Mr S Clark VK3ASC writes from Balnarring, Vic, as follows:

"... No doubt the circuit you have shown would work, for a time, then the buzzer points would weld together, in which case it would be straight CW or they would burn open and you would have naught.

"I suggest you visit the library in Adelaide and borrow a copy of the 'Admiralty Handbook of Wireless Telegraphy', the 1931 edition would probably be best for your purpose although the 1938 (last) edition I think also has a number of ICW circuits. Another very simple method (again an overmodulator) is to feed raw AC to the plate or plates. This has sometimes been done and is not too bad if the AC frequency is 400 to 1000 Hz. Another simple method is to remove one or more of the filter capacitors from the circuit after the rectifier and by this method a more appropriate depth of modulation can be achieved, without overmodulating, which will cause splatter.

"You can, of course, grid modulate the beast with an audio tone, but this was rather frowned upon as the carrier may still be there with the key up.

"It was common practice NOT to distinguish between MCW and ICW as the effect on received tended to produce the same result. Another point too is that ICW or MCW was normally confined to operation on the

frequencies below the Broadcast band, where simple heterodyne receivers were practical. Some of the older receivers had separate heterodyne oscillators, (these) were not uncommon. It was quite common for the Navy to use a set known as the 'A11, M11, N9, K5'.

"[The] A11 [was a] tuner covering 10-500 kHz using plug-in coils with the individual coils fitted into circular holes cut into a block of ebonite (hard rubber) 22 mm thick, with cheeks of 1.6 mm material, the coil 'block' being about 380 x 150 mm. There were three coils in each 'block' (which is really an inadequate word).

"... So much for that. You see, it was common not to use superheterodyne receivers for VLF/MF ranges because at those frequencies, they were very inefficient.

"I hope you do not mind me criticising your article, but, modern authors often appear to treat history cavalierly. Saturday's 'Sun' even referred to a twenty-one passenger DC2. Ha Ha! It was the DC3 that carried twenty one in normal commercial service...

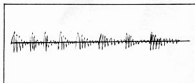
A very interesting letter, as much for its style as its historical content. I do hope I was not seriously accused of treating history cavalierly, for I am fascinated by the old equipment and practices. Perhaps other readers would be inclined to share their knowledge or experiences.

Meanwhile, Mr J Gazard VK5JG of Medindie Gardens reminisces on the transition from Spark to CW:

"I was interested to read the discussion on ICW and MCW in December AR. One wonders how a transmission broken up into dots and dashes can be called continuous wave. I think the explanation is as follows —

"In the early days of amateur radio all

transmission was by spark. With this method a spark discharge across an inductance and capacity induced on oscillating current in the inductance at the resonant frequency of the circuit. This oscillating current was damped out until the next spark started it again. The wave form was as shown —



"This was called a damped wave.

"When valves became available to amateurs about 1920 they were used as oscillators to provide a continuous wave. Spark operation and valve operation existed together for some time and the two methods were referred to as 'spark' and 'continuous wave'.

"Spark operation gradually disappeared and about that time amateurs started using telephony and the two methods then in use were called 'CW' and 'Phone'.

"The terms have existed to this day but by now the term CW has lost its original meaning — which distinguished it from spark — and has come to mean operation by Morse Code."

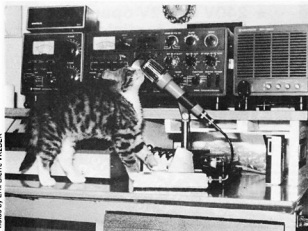
Well, there you have it. Two interesting letters shedding a bit of light on the dim past of amateur radio...

My thanks to both gentlemen, and I'd like to extend a special invitation to any other old-timers out there with interesting episodes of radio history to relate.

73 till next month.

AR

AMATEUR CAT



Amateur radio is such an interesting and exciting hobby that even our four footed

friends are becoming involved.

First we had Timbo calling CQ on



December's cover. Now we have Tammy being a little more technical operating RTTY.

INTRUDER WATCH



Bill Martin, VK2EBM
FEDERAL INTRUDER WATCH
CO-ORDINATOR

33 Somerville Road, Hornsby Heights, NSW 2077

I have just come back from a very pleasant day attending the Annual General Meeting of the Mid-South Coast Amateur Radio Club, which was held near Milton, NSW, on Saturday, 11th February. Although not a member of the Club, I was there as Intruder Watch Co-ordinator, at the invitation of the past President, John, VK2BTQ, and attempted to let the Club members in attendance know something of the workings of the Intruder Watch, and what we would like to hear from any amateurs who hear intruders on the amateur bands. A very pleasant day, and I was made most welcome. The Mid-South Coast ARC certainly has a nice spot to hold meetings.

I spent Saturday night at the QTH of John, VK2ANO, a very old friend, who lives in Wollongong, and took the FT107M down with me. Due to the economic exigencies of the domestic scene at my QTH, I have always transmitted on wire antennas, verticals, and the like, and it was very pleasing to hook the 107 up to John's tri-band beam up about 16 metres, and hear the receiver spring into life. I really must get on with my plans to build a tri-band quad. The difference between my wires and John's beam had to be heard to be believed. I'm sure the rig was pleased to find itself hooked up to a decent antenna for a change.

Now, you're probably thinking, "What has all this to do with the Intruder Watch?"... only this — one of the Club members came to me after the talk, and told me that it appeared to him that establishing whether or not a strange signal heard on an amateur band was in fact an intruder was not as simple as he had previously thought. This is quite correct. Unless we are all familiar with the frequencies designated to be EXCLUSIVE to the Amateur Service, we cannot be sure if we are monitoring an intruder. If you have any doubts about the segments of the bands designated exclusive to the Amateur Service, get in touch with your Divisional IW Co-ordinator, or myself, and we will try and help you out. And if you are a VK5 amateur, with about half an hour a week to spare, get in touch with the VK5 Divisional Council, and offer your services as VK5 Intruder Watch Co-ordinator. If interested, get in touch with me first, and I'll tell you what's entailed. There's not much work involved, and you will be doing all amateurs a service, as well as yourself.

It is my intention, starting this month, to publish a little information on intruders being currently heard, from month to month.

Radio Peking continues to trouble us on 80 and 40 metres. On 40 metres, of course, broadcasters are only intruders when heard between 7.0 and 7.1 MHz. Radio Peking is

heard on 7.010, 7.020, 7.025, 7.085, and is likely to be just about anywhere else, when suffering jamming interference from the USSR. Radio Tirana, Albania, is also a nuisance on 7.080, 7.090 and 7.065 MHz. Radio Moscow has their lower sideband on 7.099 MHz. SGJ, the CW station on the Chinese/Burmese border, remains with us on 7.060 MHz. UMS, the Russian merchant Navy shore-to-ship RTTY station, continued to ignore protocol, and wipes us out on 21.032 MHz, daily. F9T, on CW, is still being heard on 21.115 MHz, but has also been heard quite a few times on 14.292 MHz, WHERE HE IS ENTITLED TO BE, and we hope that he may vacate the 15-metre spot in favour of this new frequency. In answer to an Intruder Watch complaint to Radio Moscow on their out-of-band transmissions and spuri on 15 metres, they have replied to the effect that, "... We have sent your request to the Ministry of Communications of the USSR for their consideration ..." Who knows? ... we may prick their conscience if we keep at it. Remember, it is important to keep reporting THE SAME INTRUDERS monthly — this is how we build up a case against them. Thanks to all who sent reports last month. See you again next month, and must now get back to thinking about building my quad.

AR

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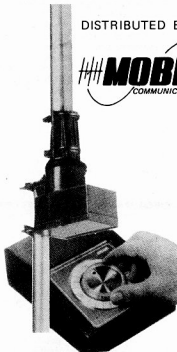
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THE NEED FOR IMPROVEMENTS TO TELEVISION RECEIVERS

The Canadian Department of Communications, in recognising the need for efficient spectrum utilisation, says that the television spectrum is mainly governed by the television receiver. Its response determines the number of television channels that can be placed at one location and the distance separation between other channels. The susceptibility of television receivers to signals, other than the one to which it is tuned, establishes the separation distances required for stations transmitting on other frequencies. With the increasing demands for electromagnetic spectrum space, the role of the receiver in spectrum allocation requires examination.

Because the television receiver has become the prime entertainment means in the majority of homes and because of the trend to use the television receiver as a visual display terminal for video games, home computers and data processing, improvements in the television receiver are necessary. Technological advances such as very large scale integrated circuitry, low noise devices, surface acoustic wave filters, EMC engineering techniques in circuit board design and in the equipment's general layout, and the use of the TEM cell in design evaluation work, can all be used to improve TV receivers.

As the number of services using the electromagnetic spectrum continues to increase, the resulting congestion produces a greater number of interference complaints. Figures on complaints of television interference in the USA show that sixty percent of all EMI complaints involved TV receivers, and are due to spurious response in the TV receiver. Existing television receivers are susceptible to interference from various sources such as FM broadcast stations, other TV broadcast stations, land mobile radio systems, general radio services, CB and amateur radio systems.

The transmitting sites for many TV stations have been surrounded by the rapid growth of suburban population and also, many broadcast antennas are located on high buildings in the central core of cities. This results in a large population close to a transmitting antenna. More and more television receivers are therefore required to operate in an environment of high-level unwanted signals. The Canadian Department of Communications has been receiving an increasing number of complaints of degraded television reception which results from the presence of unwanted high field strengths from nearby radio transmitters and broadcasting stations. Television receiver susceptibility to high level in-band and out-of-band radiation has been investigated by the Department's EMC Analysis

Division and in one conclusion, it was stated — "No set tested was immune to levels of out-of-band input signals such as are likely to be encountered in the normal environment due to emissions of correctly operating licensed transmitters."

Signal overloading in the front-end of TV receivers has become quite common due to the rapid expansion of the general radio service. For example, services operating in the 27 MHz band can overload the TV receiver's front end causing second harmonic interference to the reception of TV Channel 2. This and other interference problems have prompted the Department to issue an information brochure intended to assist the consumer in identifying interference and to provide technical information for service representatives to resolve interference.

The television receiver has been used, until recently, solely as a visual display device for TV programmes distributed through off-air or by cable systems. Technological advances in digital data processing have created new applications for the use of home TV receivers as a display terminal. Video games are already widespread in the consumer market as are home computers. Videotext systems are being developed and introduced in various parts of the world; Oracle, Ceefax, Prestel and Antiope are some of the systems in use. In the United States, several teletext services similar to the British and French systems are being tested on Cable TV and broadcast systems. In Canada, the Department, at its Communications Research Centre, has developed Telidon which represents a technological improvement over the European videotext systems. Other experimental or development projects are also making use of the television receiver as a display device. The expeditious development of the versatility of the television receiver is needed to ensure its ability to accommodate the requirements of these newly developing services.

The television receiver is a consumer product and is, therefore subject to highly competitive pricing practices of the consumer market. Because of the need to remain competitive, manufacturers are reluctant to implement major changes to improve television receivers.

Over many years, the television receiving system has remained essentially unchanged. However, there have been many changes in the TV receiver: from black and white to colour; from tubes to transistors and finally to integrated circuits. New features have been added such as automatic colour control, push button tuning, remote control, memory tuning, etc. These changes were introduced

voluntarily by the industry and are known as "visible changes", that is, changes which can be readily demonstrated or shown to the consumer. These features improve the saleability of the television receiver. . . . Not so EMC! EMC is not a visible change and cannot be easily demonstrated to the consumer as a desirable feature.

The continued haggling between government and industry in both the US and Canada in the matter of susceptibility standards for television receivers and other electronic home entertainment devices certainly hurts consumers in both countries. But it also hurts the manufacturers as consumers turn to products that are better designed and assembled, and can operate in today's hostile electromagnetic environment. In many cases, these products come from abroad. Thus, the poor performance of many domestic television receivers in the area of unwanted EM susceptibility is one more example where an industry (here, the electronic home-entertainment industry) has failed to recognise that attention to performance standards is essential to improving its reputation and sales.

While manufacturers in Sweden, France and West Germany have pioneered exacting standards for product performance, many of the world's manufacturers have no interest in EMC or product performance. The home entertainment industry could, if it wanted to, turn the matter of susceptibility into a "plus" by building and marketing devices that could operate without interruption in today's hostile EM environment. The German manufacturer Grundig did this in the mid-1970s with the introduction of its Super Colour television receiver. This receiver could perform correctly even with an operating amateur transmitter connected to its antenna input.

The Federal Communications Commission in the United States produced, in 1981, a notice of inquiry on "Radio Frequency Interference to Electronic Equipment". The notice lists numerous headings, Consumer Issues, Equipment Manufacturing Issues, Economic Issues, Government and Engineering Issues, but makes no reference to issues of interest to the hundreds of thousands of licencees in every service who are operating transmitters manufactured and approved under FCC specifications.

Radio stations, and their associated transmitters, are licensed to serve the public interest, convenience, and necessity. All too often, the stations are blamed for interference which results not from poorly designed or improperly operated transmitters, but from a poorly designed and manufactured receiver or other electronic device.

Failure of consumers to accept the facts, that the interference results from imperfections in their own equipment, has led to pressure upon local governments to adopt restrictive zoning ordinances and, in some instances, to law suits against the stations and their licensees under the theory of nuisance abatement. In 1979 the ARRL urged the FCC to co-operate with all manufacturers of home electronic devices in the development of a practical, workable self-regulating programme to reduce the susceptibility of home electronic devices to radio frequency interference. They concluded that if a voluntary programme could not be initiated immediately, then the Commission should support legislation which would require manufacturers to address themselves to the EMC aspect of their products.

North of the border, Canadian designers, manufacturers and importers are also advised

to co-operate in a voluntary EMC programme, thereby avoiding the need for harsh legislation. The Canadian Standards Association's Standards Steering Committee on EMC is addressing, as part of its recently formulated programme of priority work, the development of radiated immunity standards for electrical and electronic equipment. The object of this proposed co-operation between government and industry, is two fold: firstly it will provide a common set of measurement methods and limits which may be referred to and used, on a voluntary basis, by manufacturers to ensure the immunity of their product in the Canadian electromagnetic environment; secondly, it would provide an established consequential basis for legislated regulation, should the voluntary approach prove unsuccessful and more stringent measures be required. The Canadian Department of Communications stresses that if Canadians are to enjoy

effective use of the electromagnetic spectrum and satisfactory performance from all forms of electrical/electronic equipment simultaneously, there is a real need for effective overall EMC control.

The Australian Department of Communications are equally concerned that Australians should enjoy fair and effective EMC control to cover all aspects of electronics. We trust they will make effective use of the powers contained in the new Radiocommunications Act and not rely on voluntary co-operation from designers, manufacturers and importers. World-wide experience shows that, in general, manufacturers and importers do not voluntarily co-operate on EMC. This is no doubt due, in the main, to ignorance in regard to EMC techniques, and cost fears. An effective EMC policy for Australia would help to stop substandard equipment being dumped on unsuspecting Australian consumers. **AR**

THAT TERRIBLE FIVE MINUTES



Bruce Devenish, VK1BUB
3 Lambert Street, Lyneham, ACT 2602

The prospect of learning Morse code to a speed of ten words per minute, starting from scratch, is one which confronts most of us who wish to obtain a full licence. We have to ask ourselves such questions as: How long will it take?; What is the most efficient method of learning?; Should I receive random letters and numbers or meaningful text?

Whether you are successful in your endeavours is decided in a five minutes receiving test (that terrible five minutes) and a short sending session.

The question, which is easier receiving or sending, is easily answered. Sending is much easier, you needn't buy a key until a couple of weeks before the test.

The question of which is the most efficient method of learning is an important one. No doubt educationalists have theories on learning which could be applied to the learning of Morse code. One such theory is that learning takes place when one receives positive reinforcement for the correct response. Using this idea I programmed a VIC 20 computer to give the sound for an A. The response I made was to hit the A key on the keyboard. If I made the incorrect response, the computer told me so. Having learnt the code for A I then included more letters in random sequence. I kept up this procedure until the only thing slowing me down was how fast I could find the key. I then modified the programme to give the sound of 25 random letters and then list them on the screen.

Having got this far I was ready for the slow Morse sessions on 80 metres. These I listened to most nights and copied down as much as I could.

Friends provided me with other programmes which produced random letters and numbers in groups of five at whichever speed was required. These programmes I used for about forty minutes each morning. I feel you learn at the fastest rate if you work at a speed in which you still make mistakes even with your greatest concentration.

Whether it is better to learn from a text or random letters is an interesting one. If you use a computer you have to use random letters or get someone else to type in a text for you. With the 80 metre broadcast you get mainly text but with some groups of five random letters and numbers.

Because of the way I had learnt my Morse code, when it came to the terrible five minutes I simply wrote down the characters as they turned up. I didn't even know what the subject was about. Maybe if you try to read it as you write it down, or anticipate the next letter, you may get into strife.

Anyway, good luck to all Morse code learners and many thanks to the 80 metre Morse code session operators. **AR**



TRY THIS

Harry Michael, VK3ASI
88 Mt Pleasant Rd, Belmont, Vic 3216

A No-solder Mod for the FT290-R

I noticed that my FT290-R "power output" meter had a higher reading on my resonant J-pole antenna, at home, than it had on its own telescopic whip. This seemed to indicate to me that all was not quite healthy with the inbuilt system.

Perhaps a "capacity hat" was called for?

I balanced a 20 cent coin on the top of the extended whip, and behold! An immediate improvement!

After some experimentation with a local amateur, I finally settled for a real "hat", consisting of a screw top off a whisky bottle, fitted with a concentric sleeve/terruze. See Fig. 1.

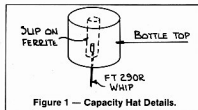


Figure 1 — Capacity Hat Details.

When slipped on to the tip of the whip in portable mode, the results are quite impressive. . . . "Power out" reads the same as when connected to the external J-pole, and the signal reports appear as two "S" points better both sent and received. Signal to noise in the receiver on a weak signal improved greatly.

I chose a "Grants" top, as it has a longer reach than some bottles, but the mind boggles at the experimentation that could be done here. **AR**



AMSAT AUSTRALIA

Colin Hurst VK5HI

8 Arndell Road, Salisbury Park, SA 5109

NATIONAL CO-ORDINATOR

Graham Ratcliff, VK5AGR

INFORMATION NETS

AMSAT AUSTRALIA

Control: VK5AGR

Amateur Checkin: 0945 UTC Sunday

Bulletin Commences: 1000 UTC

Winter: 3.680 MHz

Summer: 7.064 MHz

AMSAT PACIFIC

Control: JA1ANG

1100 UTC Sunday

14.305 MHz

AMSAT SW PACIFIC

Control: W6CG

2200 UTC Saturday

28.878 MHz

Participating stations and listeners are able to obtain basic orbital data including Keplerian elements from the AMSAT AUSTRALIA net. This information is also included in some VJA Divisional Broadcasts.

ACKNOWLEDGEMENTS

Contributions this month are from Bob VK3ZBB, Graham VK5AGR, AMSAT Telemail and Amateur Satellite Report (ASR).

This month the ever reliable UoSAT Bulletin that we have come to rely on has been conspicuous by its absence. However we were pre-warned that this may eventuate as the UoSAT team were finding that the time to update the bulletin was affecting the schedule to fly UoSAT-B on to the launch pad by the 1st March. Nonetheless we were somewhat relieved all the same to see the following bulletin placed on the AMSAT Telemail Bulletin Board by Harold Price NK6K.

UoSAT-B STATUS

A short report from the trenches, Western Test Range, VAFB, California. Things are going as well as can be expected. UoSAT-B is alive and well and installed in a clean room. Several tests have been completed, a high point, at least to your author, was the complete RF in to RF out test of one of the Digital Communications Experiment's data paths. We went in to the 70 cm receiver and came out the 2 m transmitter into a 2 metre handheld and into a modem. All went well. There are the usual number of loose ends to be cleaned up before UoSAT-B is mated to the launcher on 22nd February. Due to what is believed to be external contamination picked up during environmental testing, the S/C must go through an unscheduled twenty four hour plus bake-in and measurement period. NASA agreed to a push back of the mate date to compensate, so only a day or so of work time will be lost.

The CCD imager is in great shape to this author's eyes. Even in the low light underneath the S/C inside the attach fitting, a test pattern card showed up in good detail and contrast on the test monitor. The Surrey crew wants me to pass on their apologies at not having time to get more info out, but everyone is working hard to get the S/C in shape. UoSAT-1

is currently off the air because there is no one left in Surrey to command it. AO-9 will therefore probably be off the air until they return, not before 24th February or so. Someone, I've forgotten who, asked for a launch time line. I'm not sure what is wanted, but the UoSAT deploy is 4300 seconds (71 min 40 sec) after launch. The sep should be in view of Surrey, they will be able to command it on its first orbit. Telemetry equations are promised soon, the 2 metre beacon uses the same frequency as UoSAT-A, 145.825. UoSAT-B will be sun synchronous at 9.00. The default telemetry mode is similar to the UoSAT-A telemetry, except the status bits are sent as channels 60-69, and a header of "UoSAT-2" and a time stamp are present. Those are the printable highlights of the first few days here.

THE AMSAT-STONER CHALLENGE CUP

In an endeavour to encourage operational activity on Oscar-10 AMSAT have organised a competition called The AMSAT-Stoner Challenge Cup. Don Stoner W6TNS wrote in the April 1959 issue of CQ Magazine in his "Semiconductors Column" the following:

"Currently being tested is a solar powered six-to-two-metre transistor repeater which can be ballooned over the Southwest. Can anyone come up with a spare rocket for orbiting purposes."

Those "fateful words" to quote Bill Orr W6SAI started a series of remarkable events that saw OSCAR-1 launched in December 1961. Reprinted from ASR Number 71, here are the official rules. Incidentally the Grid Square System referred to in the Rules is described in the January 1983 Issue of QST, page 49.

1) Objective: Two-way communication via AO-10 Mode B or Mode L using the lowest uplink power possible. For SWLs, the objective is to report as many QSOs as possible with special emphasis on those QSOs involving QRP stations.

2) Competition Period: Commencing 0000 UTC 15th April, 1984 and running continuously through 2400 UTC 14th July, 1984. No time limit on cumulative operating time.

3) Entry Categories:

a) Challenger Class (AMSAT Members only; affiliated AMSAT organisations are included, eg. AMSAT-UK, AMSAT-DL, JAMSAT, etc).

b) Competitor Class (Future AMSAT Members; not currently members).

c) Observer Class (SWLs; includes amateurs not presently equipped for AO-10 both members and future members).

4) Exchange: QSO serial number, uplink power code, grid square and AMSAT member number (if any). See below for power code.

5) Scoring: is based on three major elements:

a) QSO points which are earned for each QSO completed. Credit is given in inverse proportion to the uplink power employed. Basically the lower the power, the more points you get for each QSO. Points per QSO will vary both with your uplink and the other stations uplink and are computed on a QSO-by-QSO basis. See below.

b) AMSAT Member multiplier. Each AMSAT member worked doubles the point value of each QSO. Thus an AMSAT member QSO gives you a member multiplier of two. Non-member QSO multiplier is one.

c) Grid square multiplier. The multiplier is equal to one unit for each DISTINCT grid square worked.

For observers class, simply report the power codes of each side of the QSO but do not apply the member multiplier or the grid square multiplier. Observer's score is then the sum of individual QSO power codes as described below.

Scoring details:

QSO Points. Based on the matrix and explanation below.

Uplink power code A is 200 watts EIRP or less.

Uplink power code B is 201 to 800 watts EIRP.

Uplink power greater than 800 watts on Mode B is not permitted.

Uplink power is not limited on Mode L and each QSO is scored as if it were Mode B, code A.

| | Your Uplink | |
|----------------------|-------------|---|
| | A | B |
| Other Station Uplink | A | B |
| | 5 | 3 |
| | 3 | 1 |

From the matrix one can deduce the following. For QSO points, each QSO in which BOTH stations use less than 200 watts EIRP (code AA), the QSO points total 5. If either station uses less than 200 watts (code AB and BA) the QSO is worth 3 points. If both stations use between 200 and 800, (code BB) the QSO earns 1 point.

Sample Scoring calculations:

You work an AMSAT member. He's running 500 watts EIRP, you're running 125 watts. The QSO points are 3 (code BA). Since he's a member, the member multiplier is 2. The total worth of the QSO is thus $3 \times 2 = 6$ points.

You work another station. He's not a member. Both of you are running 100 watts EIRP. The QSO points are 5 (code AA). The member multiplier is 1. (He's not a member). The QSO total is thus $5 \times 1 = 5$ points.

After all individual QSOs are tallied, the sub-total is multiplied by the grid square multiplier. Suppose your QSO sub-total is 1250 points. Suppose you worked 200 grid squares. Take the QSO points sub-total (1250) and multiply it by the number of different grid squares you worked. Thus: $1250 \times 200 = 250,000$ points; your grand total.

6) Logs: Log sheets may be obtained from AMSAT. Home made logs are okay too as long as the format is followed.

7) Miscellaneous: No repeat contacts. One credit only for each station callign worked. The QTH of your station is optional and can be moved at any time to any other QTH with unlimited freedom. CW and SSB are the only modes permitted in this initial event. Note the affiliation of the member next to the member number using a convenient abbreviation with notes to indicate what it means, eg. UK, DL, VE, ZL, etc.

8) Reporting: Logs must be sent to AMSAT, PO Box 27, Washington DC 20044 and must be postmarked not later than 1st September, 1984. A summary sheet must be included to indicate grid square total and QSO point sub-total. A signed statement attesting to the accuracy of the log must be enclosed and the entrant must state the maximum power used did not exceed 800 watts EIRP on Mode B. (No limit on Mode L.)

9) Awards:

a) **Challenger Class.** First place will be honored with a silver loving cup engraved with "AMSAT-Stoner Challenge Cup, 1984. FIRST PLACE (your callsign)". The next four finishers will receive plaques. The next five finishers will receive special certificates. All entrants in the Challenger Class will receive a certificate.

b) **Competitor Class.** First place will receive an engraved plaque with the winners callsign and a one year AMSAT Membership. The next four finishers will receive special certificates.

c) **Observer Class.** The top five Observers will receive certificates.

10) **Costs:** A nominal entry fee is required to offset the costs of administration. AMSAT members fee is \$2; non-members is \$3.

11) **Disqualification:** An entrant may be disqualified for:
a) More than 2% log dupes (Callsigns or grid squares claimed).
b) Consistently exceeding the Mode B General Beacon (145.810 MHz) by 6 dB or more, about one S-unit.
c) Behaviour incongruous with good amateur radio practice.

BOOK REVIEW

Mention was made in last month's column of the imminent release of the "The Satellite Experimenter's Handbook by Martin Davidoff, K2UBC, published by The American Radio Relay League".

Thanks to Graham VK5AGR I have previewed the copy he had airmailed from AMSAT. It is an excellent publication and is a must for the bookshelves of all practising satelitters as well as the intending satelitters, to which this publication was primarily intended. The Foreword to the publication and the Table of Contents virtually say it all.

SAMPLE LOG AND SCORING INFORMATION FOR THE AMSAT-STONER CHALLENGE CUP

| Date/Time | QSO Serial Number | Callsign | Uplink Power Code Sent | Uplink Power Code Received | Grid Square | Member Number | QSO Points |
|--|-------------------|----------|------------------------|----------------------------|-------------|---------------|------------|
| (Sample entries) | | | | | | | |
| 17th Apr | | | | | | | |
| 2200 | 523 | W6SP | A | A | CM96 | 132 | 10 |
| 2201 | 524 | VE2VQ | B | A | FA32 | 543 | 1 |
| 2202 | 525 | XE1TH | B | B | CH86 | — | 6 |
| 2203 | 526 | Q3IOR | A | A | EU90 | 12 | 10 |
| 2204 | 527 | PY2LK | A | A | KY76 | — | 5 |
| etc. | | | | | | | |
| Total grid: 200. Total QSO Points: 1250. | | | | | | | |
| Grand total 1250 - 200 = 250 000 points. | | | | | | | |
| Note: Be sure to count only total different grid squares worked. | | | | | | | |

FOREWORD

OSCAR-1, Amateur Radio's first satellite, was launched into orbit in December 1961. A small, battery-powered box, OSCAR-1 continually transmitted the Morse code identifier HI to eager ears on earth. A tremendous achievement for amateur radio in the early days of the Space Age, the successful mission was to be the first of many.

The resourcefulness, ingenuity and skill of the amateur radio satellite community in the years since have made a fascinating story. From the California garage and basement workshops of the '60s, to the co-operative international projects of the '80s, amateurs have pursued the dream of reliable, predictable, long-distance and long-duration radio communication on VHF and higher frequencies. Each successive OSCAR has been one more step toward the realization of that dream. With the successful launch of AMSAT-OSCAR-10, the first of the "Phase III"

satellites, the Amateur Radio Service entered that new era of communication. Yesterday's dreams have become today's reality.

You are part of that reality! From setting up a modest ground station and communicating through the "birds", to understanding some of the more advanced concepts of satellite orbits and tracking, THE SATELLITE EXPERIMENTER'S HANDBOOK provides all you need to know. Whether you're a beginner, an old hand at satellite work or a student of space science, this book is your launch vehicle into the fascinating journey of amateur radio in space.

GENERAL INFORMATION

As at 21st November the position of 1966-100A ATS 1 was reported as 165°53' E, 10°46' N, inclination 11.191°.

The following spacecraft have radio beacons on frequencies less than 150 MHz.

| Number | Name | Frequency | Inclination |
|-----------|------------|---------------|-------------|
| 1966-100A | ATS 1 | 136.46 137.35 | 11.191 |
| 1967-034A | NNSS 30120 | 150 also 400 | 90.214 |
| 1967-048A | NNSS 30130 | 150 also 400 | 89.627 |
| 1967-092A | NNSS 30140 | 150 also 400 | 89.245 |
| 1968-012A | NNSS 30180 | 150 also 400 | 89.989 |
| 1970-067A | NNSS 30190 | 150 also 400 | 90.023 |
| 1973-081A | NNSS 30200 | 150 also 400 | 90.1 |
| 1978-013A | IUE | 136.86 | 28.917 |
| 1979-057A | NOAA6 | 136.77 | 98.557 |
| 1981-059A | NOAA7 | 136.77 137.77 | 99.019 |
| 1983-022A | NOAA8 | 136.77 137.77 | 98.73 |

APRIL 1984

OSCAR-10 APOGEEES

| DATE | DAY | ORBIT # | UTC HHMMSS | SATELLITE | | BEAM HEADINGS | | | | | | | |
|---------|-----|---------|------------|-----------|--------------|---------------|----------|--------|--------|--------|--------|--|--|
| | | | | APOGEE | CO-ORDINATES | SYDNEY | ADELAIDE | PERTH | | | | | |
| | | | | LAT DEG | LONG DEG | AZ DEG | EL DEG | AZ DEG | EL DEG | AZ DEG | EL DEG | | |
| APRIL 1 | 92 | 603 | 1629.14 | 25 | 153 | 50 | 2 | | | | | | |
| 2 | 93 | | | | | | | | | 305 | -3 | | |
| 3 | 94 | | | | | | | | | 310 | 3 | | |
| 4 | 95 | 608 | 0246.50 | 25 | 309 | | | | | 317 | 9 | | |
| 5 | 96 | 610 | 0206.52 | 25 | 300 | | | | | | | | |
| 6 | 97 | 612 | 0124.55 | 25 | 290 | | | 308 | -1 | 324 | 14 | | |
| 7 | 98 | 614 | 0043.87 | 25 | 281 | | | 315 | 5 | 332 | 19 | | |
| 8 | 99 | 616 | 0002.59 | 25 | 271 | 306 | -3 | 315 | 5 | 332 | 19 | | |
| 9 | 100 | 618 | 2302.02 | 25 | 262 | 312 | 4 | 322 | 10 | 341 | 22 | | |
| 10 | 100 | 620 | 2241.04 | 25 | 253 | 319 | 9 | 330 | 15 | 351 | 24 | | |
| 10 | 101 | 622 | 2209.06 | 25 | 243 | 327 | 14 | 338 | 18 | 1 | 25 | | |
| 11 | 102 | 624 | 2119.09 | 25 | 234 | 335 | 18 | 347 | 21 | 11 | 24 | | |
| 12 | 103 | 626 | 2038.12 | 25 | 224 | 344 | 21 | 357 | 22 | 21 | 21 | | |
| 13 | 104 | 628 | 1957.14 | 25 | 215 | 354 | 22 | 7 | 21 | 30 | 18 | | |
| 14 | 105 | 630 | 1916.15 | 25 | 206 | 4 | 23 | 16 | 20 | 37 | 13 | | |
| 15 | 106 | 632 | 1835.19 | 25 | 196 | 13 | 21 | 25 | 17 | 45 | 8 | | |
| 16 | 107 | 634 | 1754.21 | 25 | 187 | 23 | 19 | 34 | 13 | 51 | 2 | | |
| 17 | 108 | 636 | 1713.24 | 25 | 177 | 31 | 15 | 41 | 8 | | | | |
| 18 | 109 | 638 | 1632.26 | 26 | 168 | 39 | 10 | 48 | 2 | | | | |
| 19 | 110 | 640 | 1551.28 | 26 | 158 | 46 | 5 | | | | | | |
| 20 | 111 | 642 | 1510.31 | 26 | 149 | 52 | -1 | | | | | | |
| 21 | 112 | | | | | | | | | | | | |
| 22 | 113 | | | | | | | | | | | | |
| 23 | 114 | 647 | 0128.07 | 26 | 305 | | | | | 307 | -1 | | |
| 24 | 115 | 649 | 0047.09 | 26 | 296 | | | | | 313 | 5 | | |
| 25 | 116 | 651 | 0006.12 | 26 | 287 | | | | | 320 | 11 | | |
| 26 | 116 | 653 | 2325.14 | 26 | 277 | | | 311 | 1 | 327 | 16 | | |
| 26 | 117 | 655 | 2244.16 | 26 | 268 | 309 | -0 | 317 | 7 | 336 | 20 | | |
| 27 | 118 | 657 | 2203.19 | 26 | 258 | 315 | 5 | 325 | 12 | 345 | 23 | | |
| 28 | 119 | 659 | 2122.21 | 26 | 249 | 322 | 11 | 333 | 16 | 355 | 24 | | |
| 29 | 120 | 661 | 2041.23 | 26 | 240 | 330 | 15 | 342 | 19 | 5 | 24 | | |
| 30 | 121 | 663 | 2000.26 | 26 | 230 | 338 | 19 | 351 | 21 | 15 | 23 | | |

SATELLITE INFORMATION FOR PERIOD 30TH NOV-28TH DEC 1983

The following satellites were launched

| NUMBER | NAME | NATION | DATE OF LAUNCH | PERIOD MINS | INITIAL DATA APOGEE KM | PERIOD KM | INCLN DEG | REMARKS |
|-----------|-------------|--------|----------------|-------------|------------------------|-----------|-----------|---------|
| 1983-117A | COSMOS 1511 | USSR | 30th Nov | 89.7 | 368 | 181 | 67.2 | SI TM |
| 1983-118A | HORIZONT | USSR | 30th Nov | 1439 | 35 850 | | 1.4 | TV CS |
| 1983-119A | COSMOS 1512 | USSR | 7th Dec | | | | | |
| 1983-120A | COSMOS 1513 | USSR | 8th Dec | | | | | |
| 1983-121A | COSMOS 1514 | USSR | 14th Dec | | | | | |
| 1983-122A | COSMOS 1515 | USSR | 15th Dec | 97.8 | 676 | 648 | 82.5 | SI TM |
| 1983-123A | MOLNIYA 3 | USSR | 21st Dec | 736 | 40 635 | 645 | 62.8 | TV CS |
| 1983-124A | COSMOS 1516 | USSR | 27th Dec | 89.2 | 299 | 206 | 65 | SI TM |
| 1983-125A | COSMOS 1517 | USSR | 27th Dec | 86.7 | 228 | 208 | 50.7 | SI TM |
| 1983-126A | COSMOS 1518 | USSR | 28th Dec | 709 | 39 345 | 614 | 62.8 | SI TM |

KEY: SI - Scientific Instruments
TM - Telemetry

TV - Television
CS - Communications

2. The following satellites were recovered or decayed:
- 1982-034A EXPLORER 15 19th Dec
 - 1982-026A RESEARCH 14th Dec
 - 1983-104A COSMOS 1504 6th Dec
 - 1983-106A PROGRESS 18 20th Dec
 - 1983-112A COSMOS 1509 1st Dec
 - 1983-116A STS 9 8th Dec
 - 1983-119A COSMOS 1512 21st Dec
 - 1983-121A COSMOS 1514 19th Dec
 - 1983-125A COSMOS 1517 27th Dec
- Together with thirty four other objects.

WICEN NEWS



Ron Henderson, VK1RH
FEDERAL WICEN CO-ORDINATOR
171 Kingsford Smith Drive, Melba, ACT 2615

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UPS AND DOWNS

Thanks once again to Bob VK3ZBB we have the latest list of launches and re-entered spacecraft.

FEEDBACK

In response to my requests for comments in respect to the OSCAR-10 Apogee listings I have had untold favourable responses. To all those readers who took time out to express their particular preferences and to those who included constructive criticism I thank you all. So until next month when I hope to report on the successful launch of OSCAR-11, put VK to the fore in the AMSAT-Stoner Challenge.

de Colin VKSH

AR

AMATEURS LUCKY DAY

While driving down the highway operating his 2 metre rig, Dan Large, N8ETV, was pulled over by the Highway Patrol and cited for speeding. It seems that Dan had his cruise control set at 55 MPH as he operated 147.24, but was clocked by radar at 68 MPH.

After receiving the ticket he explained his unusual circumstances to the trooper. Both parties then agreed to duplicate the incident, this time with the officer travelling next to him. After setting his cruise control at 55 MPH, the radar clocked Dan accurately. He then signalled the officer and began transmitting, this time the radar readout was at 68 MPH.

Upon conclusion of the test, the officer voided the ticket and made out a special report.

from World Radio January 1984

AR

Recently in discussions with the VK2 Co-ordinator I was asked for advice on RTTY procedure, abbreviated procedure and means of verifying the correct reception of messages without laboriously reading back the contents.

I have researched the procedure used by some of the disaster agencies and suggest the RTTY procedure below as a basis for amateur messages.

One method of ensuring message accuracy is the group count technique so I have included the rules for making a group count to assist operators who may be required to use it.

RTTY PROCEDURE

The following basic RTTY procedure is not unlike that used by NDO and should present no interoperating difficulties when working with disaster control agencies.

Calling

(5 spaces) (2CR) (LF)
desired callsign DE callers callsign K (2CR) (LF).

Answering

(5 spaces) (2CR) (LF)
callers callsign DE responders callsign K (2CR) (LF).

Can be abbreviated to:

(5 spaces) (2CR) (LF)
DE responders callsign K (2CR) (LF).

Test transmission

Sufficient LTRS to permit splicing a tape loop
(5 spaces) (2CR) (LF) (LTRS)

THE QUICK BROWN FOX JUMPS OVER
THE LAZY DOG 1234567890 TEST

DE c/s (2CR)

THE QUICK BROWN FOX JUMPS OVER
THE LAZY DOG 1234567890 TEST

DE c/s (2CR) (LF) (LTRS)

RY
(2CR) (LF) (LTRS)

Sufficient LTRS to permit splicing a test tape.

The first line has no LF to permit overprinting

tests, it may be omitted if desired.

Sending a Message

(5 spaces) (2CR) (LF)

Destination callsign (2CR) (LF) (LTRS)

DE senders callsign NR senders

serial No (2CR) (LF) (LTRS)

Precedence

Date-time-group (2CR) (LF) (LTRS)

FM originator (2CR) (LF) (LTRS)

TO action addressee (2CR) (LF) (LTRS)

WD GR nn or GRNC (group count

nn or Not Counted) (2CR) (LF) (LTRS)

BT (separates heading

from text) (2CR) (LF) (LTRS)

Text

BT

C (corrections — omit line

if none) (2CR) (LF) (LTRS)

K (or AR pro-word) (2CR) (8LF) (LTRS)

(tear off space) (4Ns) (12 LTRS)

This can be abbreviated to:

(5 spaces) (2CR) (LF)

Destination callsign DE senders callsign NR

serial No (2CR) (LF) (LTRS)

Precedence

Date-time-group (2CR) (LF) (LTRS)

FM originator (2CR) (LF) (LTRS)

TO addressee (2CR) (LF) (LTRS)

BT (2CR) (LF) (LTRS)

Text (2CR) (LF) (LTRS)

BT (2CR) (LF) (LTRS)

K (or AR) (2CR) (8LF) (LTRS)

(4Ns) (12 LTRS)

Group Count (GR) Rules

1 Text groups only.

2 Punctuation and symbols only if spelled out

or abbreviated.

3 Sequence of characters not interrupted by a

space is counted as one group.

4 Letter X used in lieu of punctuation in one

group.

5 Proper names when written without spaces

count as one group, if spaced two groups.

AR

These books are now available
from your Division or from
Magpubs.

RSGB TELEPRINTER HANDBOOK

(2nd Edition — Hardback)

RSGB RADIO AWARDS

RSGB WORLD AT THEIR FINGERTIPS

(This is the story of amateur radio in the
United Kingdom and a history of the
RSGB in hardback.)

SPOTLIGHT

ON SWLing

Robin Harwood, VK7RH

5 Helen Street, Launceston, Tas 7250

The 1984 World Administrative Radio Conference recently concluded its deliberations in Geneva, Switzerland. This was a follow-up to the 1979 WARC and was designed to thrash out technical difficulties and parameters for the 1986 Conference. There has been quite a deal of comment and information relating to the latest deliberations from the various international broadcasting organisations such as the BBC World Service, Radio Nederland's "Media Network" as well as Radio Australia's "Talkback", all with inside reports.

Clearly the bands are very overcrowded and congested. Some stations have been forced to transmit on channels normally not allocated for international broadcasting. Although WARC 79 approved extending the existing allocations to meet increased demand, many have already commenced operating within the extensions, yet these were to take effect in 1989. One new allocation between 13.650 and 13.800 MHz was also agreed to in 1979. This was to be subject to the utility services now occupying these frequencies to be relocated elsewhere. Very few stations have jumped the gun there and the only one I have so far observed has been Radio Kol Israel in Jerusalem in 13.610 MHz at 0500 UTC. Iceland reportedly uses 13.797 MHz between 1830 and 2000 UTC to broadcast programming to the fishing fleets, yet technically it could be regarded as a Utility as the same site and frequency is utilised for Point to Point traffic at other times.

The major contributing factor to the dense channel occupancy and congestion within broadcasting allocations is primarily because several channels carry identical programming. While this can be justified due to propagational variations, it is, however, mainly attributable to deliberate interference or jamming. It is no secret that broadcasters experiencing severe jamming will employ up to fifteen channels simultaneously and try and beat it. With channel space at a premium, other users are increasingly hemmed in, being drowned out by splatter from jammers or strong adjacent channels. The problem of this deliberate interference was predictably raised at Geneva, yet not surprisingly was not proceeded with. This problem requires a political and not a technical solution.

The developing, emerging nations are increasingly becoming frustrated at the virtual monopoly that advanced nations hold with regards to frequency allocation. The USSR, Western European and American broadcasters seemingly hold a pre-eminent position in channel occupancy. To redress this imbalance, the recent WARC did consider speeding up the work of the International Frequency Registration Board by computerising channel occupancy and/or allocation.

Presently many major broadcasters employ vast amounts of signal power from 500 kW

senders together with huge antenna arrays, which for many of the developing nations are well beyond their financial means. If the larger stations could somehow reduce their power levels and channel occupancy, it could give some of the smaller concerns a fairer go.

With recent improvements in modern receiver technology, it is clearly apparent that stations utilising more power than is necessary are indeed hampering the listener enjoying his/her programme. Yet even the most sophisticated receivers are not able to adequately cope with the channel density/occupancy. It must also be borne in mind that the majority of listeners will be using simple, relatively inexpensive receivers, especially in Third World countries. The use of such modes as single sideband (SSB) could be perhaps employed in broadcasts to the more advanced nations in an effort to reduce channel width.

This indeed has happened with several stations experimenting with SSB to gauge the technical merit and/or audience reaction. Deutsche Welle in Köln is at present experimenting on 9700 USB from 0600 UTC in German in addition to its normal DSB 9.745 MHz channel. The Norwegian PTT also recently conducted test-transmissions using USB with reduced carrier (H3E) relaying Radio Norway's External Service. Radio Sweden has for many years now been relaying the Home Service First Network from the Varberg site. Other organisations have employed SSB but not in standard allocations. These are Feeder Networks for their relay bases throughout the world. Stations such as the VOA and the BBC have been monitored on independent Sideband (ISB) with separate programming on each sideband. Also the USSR has an extensive SSB Feeder network mainly relaying Domestic Networks. These signals are classified as Utility stations and not broadcasting stations.

One essential aid to the short-wave listener or DXer is the World Radio TV Handbook. It contains a very comprehensive listing, country by country, of most long, medium and short wave stations currently broadcasting, together with their frequencies, operational hours and languages used. It has also continued to review popular receivers currently available for short-wave listening, prepared by Larry Magne. It also has an invaluable background on Indonesian broadcasting by David Foster of the Down Under DX Circle.

One important plus as far as I'm personally concerned, would be the extensive listing of Soviet external broadcasts in the Last Minute Information. Although not complete, it is the most extensive listing I have seen. As RM rarely reveals in advance its operating frequencies, the editors of the WRTM have had to rely solely on the observations from

monitors and collaborators. This is increasing as other broadcasters are also not bothering to pass on vital information.

Yet the past Handbook, won't be too quickly put out of reach, as I often have to check past editions to check information, particularly when some of the smaller Latin Americans sometimes unexpectedly re-activate an old channel not contained in later editions. True, that some of the information is quickly outdated, but as a data base, I do find it an authoritative reference aid and directory of international broadcasting. The cover price has risen and should be at least \$25.00 minimum at most technical bookshops. I recently received mine in advance through a bulk order in from one of the local clubs.

Recently, I participated in a Bandsman competition organised by the Australian Radio DX Club. It was on stations heard in a two hour period between 11.600 and 12.100 MHz over a week long period in mid-February. I found it a very interesting exercise, as it revealed several propagational anomalies. For example, several signals were observed much better on a vertical dipole compared to the usual G5RV dipole. The BBC Far Eastern Relay from Kranji (Singapore) on 11.750 MHz was considerably better on the vertical in comparison to the horizontal. I noticed that other signals were also different on vertical polarisation.

Although verticals are prone to electrical noise, I believe that as a reference antenna, it could be extremely useful in making propagational observations. Sometimes I do happen to hear signals on 25 metres a lot earlier on the vertical than on the G5RV, indicative of a low angle of radiation. Similarly I can often hear a weaker station under a more dominant one co-channel much easier on the vertical. The vertical I'm at present using is a 28 MHz half wave ring fed through an antenna tuning unit.

So perhaps you should consider using a vertical dipole or ground plane in addition to your long wire, doublet or even beam antenna. Naturally they are not suitable for all locations, particularly in urban areas, yet I believe that you could be surprised with the comparative results between vertical and horizontal polarisation. Your vertical need not be as long as your long wire, by winding in some traps cut for your favourite band and feeding it through an ATU.

Commencing in April, the BBC World Service will be running a serial with three episodes a week. All the drama and excitement of an international hotel will be heard in "London Royal". Each episode will last fifteen minutes. Reginald Marsh and Frances Jeater play the hosts of London Royal, Owen and Caroline Beaumont. At press deadline, I don't have exact broadcast times.

Well, that is all for this month. Until next time the best of 73s and good listening! **AR**



LISTENING AROUND

Joe Baker, VK2BJX
Box 2121, Mildura, Vic 3500

Now what else can one do on a wet day except write read or watch resurrected TV programmes. I've decided to sit in front of this typewriter with a blank sheet of paper and see how I can fill it up. I've had a wonderful on-air response to the series that I've been doing about my wartime radio experiences. I am indeed grateful for this. But I thought that before continuing that series, I would tell you about what happened when I made a trip to Melbourne before Christmas to fetch back a rig which I bought from my friend, John, VK3PBX of Sunbury.

Wanting to escape from Buronga for a few days I planned a two day overnight stop in Melbourne bringing in tow my Yaesu FT208. The trip to Melbourne in the Vinelander from Mildura can be a boring one at the best of times as the train travels by night. From the time you depart Mildura about 9.20 PM to the time you arrive at Spencer Street about 7.30 next morning there is nothing very interesting to see.

When the train arrived at Spencer Street Station it was only necessary to go and have breakfast at the cafeteria and then lug my baggage consisting of change of clothing and shoes because of Melbourne's unpredictable weather plus the FT208 to the nearby motel. I had travelled economy class and hadn't got much sleep so it was not long before I was ensconced in my room and flat out on the bed for some hours.

I had arrived in Melbourne with sufficient bikkies in the bag to obtain a HF rig of my choice so I did a bit of phoning around and lined up an FT101E which was not new. Yet before plugging off the deep end, I thought I had better seek some advice, and who better to advise me than my friend John, VK3PBX. John thought that the price asked was too much and told me about a Heathkit SB102, and invited me to inspect it. John came in and picked me up at the motel, and was most anxious for me to demonstrate my FT208 from his car while en route to Sunbury. I worked quite a number of stations, mostly through the Mt Macedon repeater and John was amazed at what this hand-held set with its rubber duckie aerial could do.

On arrival at Sunbury, John's wife Janice and two children had prepared a barbecue in the back yard, and John again invited me to demonstrate the Yaesu FT208. I decided to use the Macedon repeater which we had used between Spencer St and Sunbury, but try though I may, I couldn't trigger it from John's backyard. He put this down to the presence of a big hill between Sunbury and Macedon.

While listening to the Geelong repeater, we heard VK2DUD (Cecil Park) NSW attempting to call VK4. VK2DUD was loud and clear at Sunbury, but nothing was heard of the VK4 whom the VK2 also could not hear. I began to think about how odd it was that we at Sunbury could hear the Cecil Park station trying to raise VK4 through the Geelong repeater, then

I began checking and found that VK4 has repeaters in Brisbane and Mackay which are on the same frequency as Geelong's VK3RGL-7000, and there perhaps lay the explanation. Perhaps VK2DUD was also triggering Brisbane and Mackay.

Jack Paruscio, VK3EK of Pascoe Vale South is an amateur whom I've met at Buronga. An ex PMG telegraphist, even with only his Novice call, and at Buronga (mobile) I heard him working Americans by the dozen on CW from his car. He's a whizz at CW. One day when I was in the Spencer St railway cafeteria having a meal, with my FT208 sitting on the table, who should I hear but Jack working on 2 metres. When he finished, I broke in and he said "where are you"? When I told him that I was right there in the Spencer St railway cafeteria, Jack thought it was just incredible that sibs were able to get out of that building with all its steel and so on. Moreover my two and a half watts had no trouble making the distance.

Operating from the motel ground floor, where I was given a room for the first night, I found it impossible to trigger even Mt Macedon so I asked to be transferred to the highest floor, third floor level. From this floor I had no trouble in triggering all three repeaters, and the lesson to be learned from this is that to make best use of a hand-held in crowded Melbourne, a *high take-off point is most essential*. Even Geelong, 45 miles from where I was, was no trouble. A Sunshine amateur suggested that we try simplex, and that proved no bother between his QTH and my motel room.

Peter, who runs a cafe adjacent to the motel became very interested in my FT208 and wanted to know what it was. I tried to give him a demo, but first try at the Macedon repeater was unsuccessful. Then I tried Dandenong and, much to Peter's delight had a contact with a VK3, to whom I also introduced Peter, who was thrilled to bits to be able to talk from his cafe.

Feeling footsore after some perambulating around the city, I soon found myself down by the banks of the Yarra, in a lovely stretch of garden close to an electric barbecue and the help. Seated here I had a yarn with quite a few more Melbourneans.

When I left Sunbury after the barbecue, it was pretty late. John and Janice parcelled the Heathkit up as best they could and we set off in John's car, hoping to put the equipment in the lockers at the station in preparation for the following days return trip to Mildura. By the time we arrived, the station was locked up, so I placed the gear in the cloakroom at my motel.

After breakfast next morning, I hired a taxi to the Spencer St station's lockers.

I aimed to be back at the lockers at 9 PM that same night in plenty of time to catch the 9.25 Vinelander from Spencer St to Mildura. I was there on time, but the first thing I observed

was that there were no trolleys in sight.

Observing an intelligent looking uniformed railway official nearby, I commented on there being no trolleys near the lockers. "What do you want me to do about it?" he said. "I don't know" I replied "but I've got a lot of gear to be moved before 9.25 between these lockers and Platform four and the time is now almost seven minutes past nine. Can you tell me where I can get a trolley?" "Search the station" he said "how the h--- would I know?" "you might try hard and make an educated guess" I said. "Try Platform Two" said the helpful one — "Down that ramp and along the subway. *You might be lucky.*" So off I went as fast as possible, shortwinded and sweaty from the exertion and grabbed the first trolley I set eyes on on Platform Two. Now back to the lockers — up the ramp, pile everything — four separate items aboard the trolley then back down the ramp and through the subway to Platform Four. (My ticket had said that the train would be leaving from its usual platform Three, and it was merely by fluke that I discovered that the train had been switched to Platform Four.)

By the time I got to the carriage I was dripping perspiration, and the time was now about 9.21 PM. An unidentified passenger, seeing my difficulties assisted me to get the gear off the trolley, through a corridor and to my seat. Seated alongside me was a child of about seven or eight years, opposite him his brother about the same age, and opposite me was their mother, a Melbourne woman taking her two children for a holiday in Mildura. They were very nice people and despite the very uncomfortable conditions in that train, we got on well together.

Carriage 9.25 and the train didn't budge. 9.30 and still the train sat there with everybody wondering why we weren't on our way. Then came a voice on the loudspeakers. "Attention — passengers on the Vinelander to Mildura. The departure time has been delayed, and passengers **MUST NOT** leave the train. The delay is unavoidable — departure time is *uncertain*." There were mumbblings and grumbblings among the passengers but there was nothing that we could do to get that train on its way. Passengers began speculating. Had there been a crash, or a derailment, or some other such thing. Eventually the speakers came to life again. "The Vinelander has been delayed due to a failure of the air conditioning in one of the carriages. The matter will be rectified as soon as possible" ...

Just before ten o'clock there was a shrill whistle, and one of the Great Railway Journeys of the World — the epic transit from Spencer St to Mildura had begun.

I was greatly tempted to haul the FT208 down from my luggage on the rack and at first decided against it due to the cramped conditions in the carriage and the very real possibility that some of my gear might fall on

the head of the child in the seat next to me. But later, I decided to exercise my muscles and managed to lift the item containing the FT208 down safely. The two children and their mother, as well as other nearby passengers were pop-eyed at the sight of the FT208. "What's that? What was I going to do with it? Was it a CB." I explained that this was an amateur radio set and that I was going to try and call someone from the moving train. We were then about forty minutes out from Melbourne. They eyed me suspiciously.

I put a CQ through the Macedon repeater and got an immediate reply from a mobile in Melbourne. The expressions on the faces of those watching me was something to behold, for I had proved that I was not mad — well, not much madder than any other amateur radio operator.

As we got nearer Ballarat, I thought I'd try the Ballarat repeater. But you know what nicad batteries are — alive one minute — dead the next with no lingering process at all. So I had to let Ballarat pass by without disturbing its repeater.

The journey through the night in THAT train — well what can one say about it. At the station I got the gear out of the carriage as soon as possible through the gateway, and out to a waiting taxi and from there back to boring old Burunga. Ah well, the train didn't break down along the way, so thank goodness for that. It was an exciting job lugging that Heathkit SB102 back here, but there were no breakages. After all, all's well that ends well as Shakespeare said.

73s from Joe VK2BJX

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EDUCATION NOTES

Brenda Edmonds, VK3KT
FEDERAL EDUCATION OFFICER
56 Baden Powell Drive, Frankston, Vic 3199

Again this month we give you a trial examination paper to test the licencees skills and to allow those attempting the next novice exam to see the type of paper they can expect. Go to it guys and gals and see how you rate. Answers follow the Hamads.

TRIAL NOVICE THEORY EXAM PAPER MAY 1982

For each question select the correct or most appropriate alternative and indicate your choice in the answer sheet as directed.

- The unit of impedance is the
 - farad
 - volt
 - maxwell
 - ohm
- The frequency of 28.125 MHz would be within the
 - low frequency band
 - medium frequency band
 - high frequency band
 - very high frequency band
- The grid in a triode vacuum-tube controls the
 - rate of emission of electrons from the anode
 - temperature of the cathode
 - flow of electrons from cathode to anode
 - release of positrons from the heater
- A record player amplifier suffers severe interference from a nearby amateur transmitter. The interference may be reduced by
 - using a low pass filter at the transmitter
 - using a high pass filter at the input to the amplifier
 - using an RF bypass in the amplifier leads
 - increasing transmitter power output
- A superheterodyne receiver has an intermediate frequency of 455 kHz. It is tuned to receive a signal on 3.540 MHz. It may not be able to distinguish this signal from another signal on
 - 4.450 MHz
 - 458.540 MHz
 - 8.090 MHz
 - 3.995 MHz
- A transformer running on 240 V RMS has 600 turns on the primary. If its output from the secondary is 20 V RMS the number of turns on the secondary must be
 - 7200
 - 500
 - 100
 - 50
- An artificial antenna should be used when tuning a transmitter because
 - the artificial antenna radiates better than a natural one
 - the tuning procedure requires output of higher power than the normal antenna could dissipate
 - this avoids the radiation of unwanted test signals
 - the artificial antenna has a much higher impedance than the normal transmission line
- In a variable capacitor, the capacitance may be increased by
 - moving the plates further apart
 - increasing area of overlap of the plates
 - increasing the thickness of the dielectric
 - earth one of the plates
- When an alternating voltage is applied to a diode, the output wave-form will be
 -
 -
 -
 -
- The purpose of a fuse in a power line is to
 - break the circuit if excess current is drawn
 - provide a shunting path to earth for excess current
 - provide a connection between the active and the neutral leads
 - regulate the supply voltage to a steady 50 Hz
- To extend the DC voltage range of a moving-coil meter you should use a
 - choke in series
 - capacitor in series or parallel as required
 - transformer
 - resistor in series

- Solid state devices are often operated in conjunction with "heat sinks". The function of the heat sink is to
 - bring the device up to operating temperature quickly
 - dissipate heat generated during normal operation
 - reduce the power required for the device to operate
 - prevent the rise in internal resistance of the device that normally occurs as the temperature rises
- A capacitor is labelled 1100 picofarads. This is the same as
 - 1.100 microfarads
 - 1 100 000 microfarads
 - 0.0011 microfarads
 - 0.00011 farads
- The impedance of open wire transmission line is usually
 - 50 ohms or 300 ohms
 - 75 ohms or 300 ohms
 - 50 ohms or 75 ohms
 - 300 ohms or 600 ohms
- To use a 3.5 MHz oscillator in a set that is transmitting within the 10 metre band, the transmitter must have
 - two tripler stages
 - one doubler and one tripler stage
 - one quadrupler stage
 - three doubler stages
- A transistor that is operating in the common emitter configuration would have
 - the emitter made of silver instead of the less common germanium
 - one bias resistor common to both emitter and collector circuits
 - the emitter in both the input and output circuits
 - the output of the emitter shared between two subsequent stages
- An amplifier that is operating in Class C will
 - remove any distortion from the audio input
 - be biased to cutoff
 - have an efficiency of about 30%
 - have a high level of distortion
- A crystal oscillator is frequently used in Novice transmitters. The advantage of this type of oscillator is:
 - its cheapness
 - its high frequency stability
 - the wide range of frequencies it can cover
 - its ability to generate both harmonics and subharmonics
- In a direct conversion receiver
 - the oscillator beats with the incoming signal to produce an intermediate frequency, usually 455 kHz
 - the oscillator frequency is set very close to the frequency of the incoming signal
 - an audio amplifier stage cannot be used because of the risk of parasitic oscillations
 - CW can only be received if provision is made for a product detector to be switched in
- Two ionospheric layers combine at night to form one layer. These layers are the
 - D and E
 - E and F₁
 - F₁ and F₂
 - D and G
- This circuit

- represents a series tuned circuit
 - will pass only a narrow band of frequencies
 - will show minimum impedance at each resonance point
 - will be resonant at one frequency only
- The output from a power supply is 15 volts unregulated. To provide a regulated 13.5 volts, use could be made of
 - a resistor and a voltmeter
 - a resistor and a zener diode
 - an electrolytic capacitor and a field effect transistor
 - a tuned circuit
 - In which of these circuits is the P-N junction forward biased
 -
 -
 -
 -
 - The specifications for an amateur receiver quote an characteristic as "less than 0.25 microvolt for 10 dB S+N/N". The characteristic referred to is probably
 - audio gain
 - selectivity
 - stability
 - sensitivity
 - In an efficient single sideband transmitter, the carrier
 - is removed by heterodyning to a frequency outside the amateur bands
 - should be reduced in strength by up to 5 dB
 - is removed by filtering the output from the final amplifier
 - is suppressed by the balance modulator
 - To allow the same antenna to be used for both transmitting and receiving, it is usual to use
 - a change over relay
 - an antenna tuning unit
 - coaxial cable transmission line
 - a balun at the antenna feed point
 - A 39 k ohm resistor is in a position where it may have up to 10 millamps of current through it. It should be rated at
 - 0.5 watts
 - 1.0 watts
 - 2.5 watts
 - 5.0 watts
 - It is expected that the value of the 28 MHz band as a band for long distance communication will decrease during the next few years because of
 - changes in the inclination of the earth's axis
 - a decrease in the thickness of the ozone layer
 - the sunspot cycle approaching minimum
 - changes in the angle of incidence of the sun's rays
 - The purpose of C₁ in this circuit is to

- reduce the ripple frequency
- reduce the ripple amplitude
- regulate the voltage across R_L
- convert AC to pulsating DC

AMATEUR POEM

When I was a very little boy,
A favourite Uncle gave me an unusual toy,
Within a glass jar a "Leclanche cell"
Generated electricity to ring a bell!

Very soon my interest had grown,
And I made a primitive telephone!
Radio telephony was unknown then of course,
Distant messages were sent in "Morse".

In early days of which the "Hams" are proud,
Using waves "To short to be of use," they showed
That human speech around the world could go;
Of world-wide broadcasting today you surely know!

Broadcasting speech was still to come
When Mr Phillips, a Dutch man from Hilversum
Started sending telephony over the sea,
He often used to work with me!

My interest in electronics quickly grew,
How to build receivers, now I know,
Carols coming over the Atlantic clear
I was one of the first to hear.

KDKA, the station call came through,
Pittsburg, Pennsylvania, it must be true!
"It came upon a midnight clear,"
Was the appropriate carol I could hear.

Captain Eckersley of Marconi's at last
From Writtle, near Chelmsford, was allowed to
broadcast.
On Tuesday evenings — you could hear
A half hour concert, loud and clear!

I even heard Madam Melba sing,
Soon a whole new era would begin.
The BBC was about to start,
The "Amateurs" had played their part!

A foot of broom handle by Mother given
Half a brass stair-carpet-rod in each end driven,
With a coil wound on the wooden form
A centre loaded "mobile-whip" was born!

That's how we worked in early days
Enterprising in so many ways.
Ingenuity played it's part,
Many new ideas got their start.

Amateur radio makes many a friend,
Of famous people you meet no end;
I've spoken to Princes on occasions,
A very good thing for Public Relations!

On twenty metres one fine day
From New York in the USA
A mobile station called quite plain
A stranger even knew my name!

It was Dave Marks of "The Radio Shack"
In Broadway, New York, who answered back,
To WA he had often flown
And many local hams had known!

"Radio Amateurs" or "Hams" we are called,
Young and old, by a hobby enthralled.
For many years I've taken a part,
Thanks to my Uncle who gave me a start!

© Ernest J R Cowles, VK6EJ
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AR

Articles always appreciated by
AR.

- 30 A superheterodyne receiver designed to receive an amplitude modulated signal can be used to receive Morse code by adding
a an additional intermediate frequency amplifier
b a beat frequency oscillator
c a buffer amplifier
d a calibration oscillator

- 31 The operation of a crystal microphone relies on
a electromagnetic induction
b there being a constant magnetic field across the crystal
c the piezoelectric effect
d the carrier frequency being picked up and amplified by the crystal in the microphone

- 32 The final amplifier in a sideband transmitter must be
a designed with valves instead of transistors if the set is to be used mobile
b operated in class C for maximum power output
c linear to avoid distortion
d able to be switched off if the set is to be used for CW





- 33 A resistor when tested with a meter shows a resistance of 4500 ohms. It is most probably colour coded
a yellow violet red silver
b green violet red silver
c yellow green violet gold
d red yellow green silver

- 34 The overall length of a half-wave dipole for use on the 21 MHz band would be about
a 7.5 metres
b 15 metres
c 21 metres
d 30 metres

- 35 A nearby broadcast station is heard on many frequencies on a simple amateur band receiver. The problem could be reduced by
a arranging the dipole antenna at right angles to the direction of the problem station
b using a series tuned trap in the antenna
c using a longer antenna
d fitting a parallel tuned trap in the antenna lead

- 36 Standard operating practice for Novice operators should be to
a use a low pass filter at the transmitter output
b run always on maximum power to overcome interference from other stations
c use CW as little as possible because of the interference it causes
d fit all neighbouring TV sets with low pass filters

- 37 To use a moving-coil meter to measure AC voltage it is necessary to add a
a capacitor in parallel
b diode in series
c resistor in series
d capacitor in series

- 38 If the wave envelope of a 100% modulated signal is displayed on an oscilloscope, it should appear as
a 
b 
c 
d 

- 39 The Maximum Usable Frequency is
a usually lower in daytime than at night
b the highest frequency which can be used for a particular path at a specific time
c the frequency below which all waves pass through the ionosphere
d the highest frequency allocated for amateur use

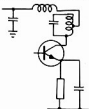
- 40 The function of a key click filter is to
a improve the character of the Morse signal by sharpening the start and end of each letter
b eliminate interference caused by switching on of household appliances
c accentuate the power peaks to aid copy by the listener
d smooth the rise and fall of the transmitter output

- 41 Parasitic oscillations
a are only likely to occur at frequencies harmonically related to the transmitter output frequency
b may be caused by stray capacitance and inductance in the transmitter circuitry
c can be avoided by the use of a low pass filter at the transmitter output
d can be cured by increasing the microphone gain so as to swamp out the unwanted oscillation

- 42 A standing wave ratio meter measures
a the amplitude of the wave form being transmitted
b the ratio of reflected power to forward power
c antenna impedance
d transmission line impedance

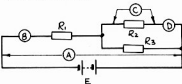
- 43 Three 600 ohm resistors are wired in parallel, and the group then connected to one 300 ohm resistor. Total resistance of the network will be
a 600 ohms
b 300 ohms
c 200 ohms
d 300 ohms

- 44 This circuit includes (among other components)



- a a tuned circuit, an NPN transistor and a capacitor
b a choke, a variable capacitor and an NPN transistor
c a transformer, a coil and a relay
d a coil, a PNP transistor and a coil

- 45 To measure the current flow through R_2 in this circuit you would use an ammeter at



- a A
b B
c C
d D

- 46 Elements commonly used in the manufacture of transistors include
a germanium and magnesium
b silicon and germanium
c silicon and manganese
d iron and nickel

- 47 Skip distance is the distance between the
a transmitting station and the receiving station
b end of the ground wave and first return of the sky wave
c transmitter and first return of the sky wave
d first return and second return of the sky wave

- 48 For a horizontal half-wave dipole antenna there will be
a a minimum voltage at the centre point
b a maximum current at the ends
c an omnidirectional radiation pattern
d a high front-to-back ratio

- 49 When an AM signal is overmodulated it is likely
a to be easier to read by a distant station
b that it will cause parasitic oscillations
c to occupy a reduced bandwidth
d to cause severe "splatter" over adjacent frequencies

- 50 The type of emission requiring least bandwidth is
a CW
b amplitude modulation
c single sideband suppressed carrier
d double sideband suppressed carrier

STRAYS

If you are studying for your amateur licence remember that hard work never killed anyone. Then again — resting didn't either??

from QRM, Vol. 1, No 7

AR

DEFINITION

"AMATEUR STATION" means a station designed for self training, intercommunication and technical investigations carried on by amateurs, that is, by duly authorised persons interested in radiocommunication techniques solely with a personal aim and without pecuniary interest . . .

from MARTS Newsletter November 1983



CLUB CORNER

NORTH WEST RADIO SOCIETY — WA JOHN MOYLE FIELD DAY

Another successful outing by the Wickham and Port Hedland groups. With Wickham making 575 contacts, the operators at their Whim Creek (airconditioned caravan) were Pattie (VK6SL), Rosco and harmonics, Jane, Dave (VK6YA), Graham (VK6ZAJ), Gordon (VK6IU) and Bob (studying).

The Port Hedland group operating under more trying conditions (under canvas) notched up a mammoth 300 contacts. The operators and support staff at the De Grey were Richard (VK6NRS), John (VK6AFA) and harmonic, Mark (VK6WV), David (VK6NCD), Brian (VK6AIIH), Sue and harmonics, Ron (VK6KRD), Dennis (VK6CZ) with harmonics, and Gaynor.

All those who took part enjoyed the weekend, but it would have been even more fun if there were more there to share the load. Maybe next time!

BEACONS

Licence approval has been received from DOC for beacons to transmit on the following frequencies. With the call sign VK6RPB 52.365 MHz, 144.565 MHz, 432.565 MHz, 576.753 MHz and 1296.695 MHz.

Mark VK6WV will work on the transmitters when he gets some of his other priority work out of the way. This will give you plenty of time to build up your receivers for these exotic frequencies.

The idea Mark is using to run these frequencies is to have three generators.

1. 52.365
2. 144.565
3. $144.18633 \times 4 = 576.753$
 $\times 3$
 $= 432.565$
 $\times 3$
 $= 1296.695$

AR

A COMBINED SYDNEY DISTRICT AMATEUR RADIO FIELD DAY

Will be held on 1st April, 1984 at Lane Cove with trade exhibits, trash and treasure, demonstrations, barbecue facilities, undercover and large carpark area.

Entertainment for children.

Contact the Secretary of your club or Sandy Brucesmith at (02) 428 1455.

AR

MIDLAND ZONE — VIC

The committee of the Midland Zone would like to thank all who attended our Annual Zone Convention at Strathfieldsaye on Sunday 19th February. The day was most successful financially and socially too.

Thanks to the following: Traders Eastern Communications, George Sumner, Bail Electronics, Marine Radio/Scalar, Graeme Scott, Ron Tremayne.

Also thank you to those who contributed to the "Steeptoe Corner" RTTY group, and ATV.

Competition winners were: Lucky door Barbara YF of Alan VK3ASB; Margaret

VK3DML; and two OMs (names unknown). Circuit No 1 Stan VK3TE; Circuit No 2 Alan VK3ASB. Hammer Throw Kay Fairbairn YF of VK3DJY. Nail Driving Jenni VK3KEI. Jelly Beans Shane C/- VK3DJY.

Thanks to the following Traders Eastern prizes for the competitions. An auction was held to raise funds for the Amateur TV repeater VK3RMZ.

A very special thank you to the ladies for their help in the kitchen and for their donations of food for catering.

We look forward to your continued support next year, once again THANK YOU one and all.

Members don't forget the ANNUAL MEETING is on Friday 13th April, 1984 at 8 PM at the Eaglehawk Community Health Centre, Seymour Street, Eaglehawk.

The May meeting it is hoped to have a speaker on Satellite Communications.

The June meeting will be the ANNUAL DINNER. Please mark these in your diary. Note the annual meeting is one week early because of Easter.

Margaret VK3DML
HONORARY SECRETARY

REDCLIFFE ARC

Redcliffe Radio Club Member, Ivan Fien, VK4AIF, at the controls of his well appointed Amateur Radio Station.



TOP SHELF. L to R. DC distribution panel, 2-metre 80 W linear amplifier, speaker mounted on top UHF/FM transceiver, UHF/VHF power SWR meter, speaker, colour TV monitor, and UHF portable set.

MIDDLE SHELF. L to R. 20 amp DC power supply, 4 amp DC power supply, 2-metre all mode transceiver, station monitor oscilloscope, world clock and antenna tuning unit.

LOWER SHELF. L to R. Speaker, ATU on top of TS43S transceiver, antenna rotator control, TS830S HF transceiver and an antenna distribution panel.

Dave Richards
Hon Secretary
AR

27TH JAMBOREE ON THE AIR

The 27th Jamboree on the Air is scheduled to commence at midnight on Friday, 19th October, 1984 and to terminate at midnight on Sunday, 21st October, 1984. Please note your calendars and diaries accordingly. This will

also enable you to commence your JOTA planning immediately.

SCOUT NETS

A reminder that the Australian Scout Net will continue to be held this year on the first Sunday of each month. Times and frequencies are as follows —

23.30 UTC 7.090 MHz
00.01 UTC Change to 21.190 MHz
00.30 UTC Operate also on 14.190 MHz
Net Station will be VK4SAA, operating from Baden Powell Park, Samford and all frequencies will be as indicated plus or minus 10 kHz because of any possible interference.

The JOTA net, on the same frequencies and at the same times will take place on the third Sunday of the month. Net station will be VK4BNL.

INTERNATIONAL YEAR OF THE YOUTH (1985)

Mr Adrian Walsh, formerly Area Commissioner for Scouts in the Canberra-Monara area in the Australian Capital Territory and now Manager, National Policy and Administration, Telecom, has informed us that 1985 will be celebrated as the International Year of the Youth. He is seeking ideas on how we can combine with Telecom to ensure the success of the celebration of this special event.

Noel Lynch VK4BNL
National Co-Ordinator 27th Jamboree on the Air
AR

BRISBANE AMATEUR RADIO CLUB

BARC will be holding their annual Barfest at Indooroopilly High School Assembly Hall on 12th May, 1984 from 9 AM to 4 PM.

Light refreshments will be available. Any further information can be obtained by contacting the Club's postal address: PO Box 300, Darra, Qld. 4076.

Don Johman VK4DS
Honorary Secretary
AR

DALBY & DISTRICT ARC

A busy year has been planned for members of Dalby and District Amateur Club. First activity was the construction of a raft which was entered in the Great Aussie Raft Race held in conjunction with the Great Aussie Sunday at Lake Broadwater.



L to R: Dorelle XYL of VK4VHW, Paul VK4ZPB, Reg VK4VHE and Neil VK4NF with the raft.

The Club has also been asked to organise a radio communication net for a national motorcycle enduro being held near Woodford at Easter time.

An amateur radio display will be mounted in Dalby on 12th May at the Nigana Retirement Village Fete. VK4WIC will be "on air" during the fete.

M V Schwerin VK4AOE
Publicity Officer
AR

GOSFORD CONVENTION — 1984

The 1984 Convention was held over the weekend of 18th and 19th February. Features of the weekend were Fox Hunts, Trade Displays and "Getting to Know-you" socialising.

Photographs by John Hill VK3WZ



Sue VK2BSB manning the WIA Stand.



Sandy Bruce-Smith demonstrates the Kenwood 43X sets.



Duncan VK3LZ and Kyoshi VK3BZX at the Icom Australia stand.



Amid the interstate and overseas visitors a group of ex PA0 amateurs take time out for a get-together. L to R — John VK3WZ, Kees PA0ALO, Ari VK2AVE and Bill VK3BHW.



CONTESTS



Reg Dwyer, VK1BR
FEDERAL CONTEST MANAGER
Box 236, Jamison, ACT 2614

CONTEST CALENDER

APRIL

7-8 DX YL to North America YL Phone
7-8 Polish CW Test +
14-15 DX YL to North America YL CW
14-15 Polish Phone Test +

MAY

26 CQ WW WPX CW Test

JUNE

9-10 ARRL Test ++
9-10 South American CW Test ++
16-17 All Asian Phone Test ++
23-24 ARRL Field Day ++

JULY

7-8 Venezuelan Phone ++
14-15 International QRP Test ++
21-22 Venezuelan CW. ++

AUGUST

4-5 European CW Test ++
11-12 Remembrance Day Contest
18-19 All Asian CW ++

SEPTEMBER

15-16 VK Novice Test

NOTE: The + Signifies an Unconfirmed Contest.

1983/84 CONTEST RESULTS TO DATE

| VK | JM | RD | VK/ZL | NOVICE | TOTAL |
|------|----|----|-------|--------|-------|
| 3XQ | 10 | 9 | 7 | 26 | |
| 6NSD | 10 | - | 9 | 19 | |
| 3CGH | 9 | 8 | 8 | 25 | |
| 5DX | 8 | - | 16 | 24 | |
| 3KI | 7 | - | N/E | 7 | |
| 4NDW | 6 | - | N/E | 6 | |
| 3DAW | 5 | - | N/E | 5 | |
| 3VF | 4 | - | N/E | 4 | |
| 2JM | 10 | - | N/E | 10 | |
| 3BKU | 9 | 4 | 8 | 21 | |
| 3BAF | 10 | - | N/E | 10 | |
| 2EL | 10 | 9 | N/E | 19 | |
| 3SP | 9 | - | N/E | 9 | |
| 5YO | 8 | - | N/E | 8 | |
| 2TR | 10 | - | N/E | 10 | |
| 4AOF | 9 | - | N/E | 9 | |
| 5DL | 8 | - | N/E | 8 | |
| 3LC | 10 | - | N/E | 10 | |
| 3KB | 9 | 6 | 9 | 24 | |
| 2BQS | 8 | 6 | 10 | 26 | |
| 1DL | 7 | - | N/E | 7 | |
| 7AL | 6 | - | N/E | 6 | |
| 3DAK | 5 | - | 9 | 5 | |
| 7NIM | 4 | - | N/E | 4 | |
| 3KCC | 3 | - | N/E | 3 | |

N/E = NOT ENTERED

These are a sample of the scores that are achieved by the entrants in the contests

nominated for the contest champion trophy. It is not feasible to print the scores of all the entrants but those of you who are interested in their position can easily ascertain their score from the printed results.

The last of the contests results will be the VK/ZL Contest results and the winner of the Contest Champion Trophy will hold the trophy from late 1984 to late 1985 for the efforts during the 1983/4 years.

Now that the John Moyle Contest is over for another year the results, of which will be printed in approximately two issues time, a new convention is taking place. This convention takes the form of the results and together with it, the relevant score points for the Contest Champion Trophy. By referring to your back issues of the magazine, you will be able to easily find your continuing progressive score for the contest champion trophy.

All the best for now
73 Reg.
AR

EMC (Electro Magnetic Compatibility)



If radio frequency interference is causing you a problem you are reminded that — "Advice on all types and aspects of interference (PLI, TVI, AFI, etc) is available from the National EMC Advisory Service".

FORWARD DETAILS TO
TONY TREGALE VK3QQ,
Federal EMC Co-ordinator, QTHR.

PLEASE NOTE —

In regard to the item "Say Goodbye to TVI" by ZL2BR, page 18 of March AR — The National EMC Advisory Service warns Australian amateurs of the political, legal and domestic implications in trying to clear TVI on a neighbours set. Don't get involved unless you are very sure of your position!

FORWARD BIAS



VK1 DIVISION

John MacPhee VK1KJM
36 Kavel Street, Torrens, ACT 2607

Before reading this article, take a good look at the wrapper that was wrapped around this edition, and ask yourself the following questions: Does it show your correct call sign? Is your address correct on the wrapper?

If the answer is "YES" to either of these questions then you should contact your secretary, Richard Jenkins VK1UE, on home phone 58 1228.

QSL BUREAU

Let's talk about the QSL Bureau and how to get the most out of it, (cards that is). The following points are here to help you and the bureau.

- 1 All cards must be sorted into alphabetical order before you hand them over to the outwards QSL manager.
- 2 The call sign of the recipient must be put on the top right hand side REAR of the card (it makes it easier for the sorter).
- 3 If the card is being sent to a QSL Manager, file the card under the manager's call sign.
- 4 Some bureaux will not accept anything but

standard size cards ie. 140 mm x 85 mm or 5 1/2" x 3 3/4".

5 Check if the country concerned has a bureau. If not send the card direct, or else the card could be sitting around your bureau for some time before despatch.

6 All VK1 cards go to the INWARDS QSL manager NOT the outwards QSL manager. If all the points listed are adhered to then both you and the QSL manager will be happier.

JOHN MOYLE MEMORIAL FIELD DAY

This year the division once again operated VK1WI Portable from the shores of Lake Burley Griffin. The camp was set up at Weston Park. The weather was fine, (a rare sight around Canberra of late) warm and sunny which is also a contrast to last years rain.

The station operated from 2 PM Saturday to 3 PM Sunday. The following is a breakdown of the contacts made from VK1WI:

2 m: 33, 10 m: 5, 15 m: 36, 20 m: 57, 40 m: 126

and 80 m: 78 that's a total of 335 contacts. A job very well done. Our thanks must go to the operators who manned the station: VK1's OK, NEU, IC, BM, RH, NEB, UE, MX, NDV, NET, AOP, NCO, DH, DC, KEN, KAL, NH, and VK2XDT.

We also wish to thank those who loaned equipment for the occasion and to Gavan VK1NEB and John VK1NCO who manned the midnight to dawn shift. Once again thanks for a job very well done.

Next month I will have a list of all the new committee members for you.

Remember that this is your Division and that you appoint the members of your committee to look after your interests, if you have anything to discuss about your hobby, then talk to a committee member, they are your voice at the next Convention.

Until next time enjoy your hobby.

73 John MacPhee
Education Officer and
Forward Bias EDITOR.
AR

FIVE-EIGHTH WAVE

Jennifer Warrington, VK5ANW
59 Albert Street, Clarence Gardens, SA 5039



By the time you are reading this there will only be two weeks to go before the Clubs Convention at O'Sullivan's Beach. Those of you who will be attending should have received copies of Agenda Items, both federal and local, which we hope you will have discussed with your clubs so that we can have their opinions on the many and varied subjects.

The weekend following will, of course, be Easter, followed by Anzac Day on Wednesday 25th April. At the time of writing we are still waiting to hear whether or not the Tuesday in between has been declared an official public holiday but even if it is not it looks as though many people will take it out of their annual leave. That Tuesday would have been our Annual General Meeting but as it looks as though many people will be on holiday it has been decided to change the date. So —

PLEASE NOTE The date for the VK5 Divisional AGM will be **TUESDAY 1st MAY**.

We apologise in advance for any inconvenience caused but felt that it was the only way that we would get a quorum. Incidentally, this date is the day that we get back from the Federal Convention (as happened last year) so you may find one or two members of council looking a little "bushed".

If you have just discovered (to your dismay!) that you have left it too late to nominate for council and you really wanted to get involved

this year — don't despair, we still have a couple of vacancies for positions that are most important, but don't necessitate being on council. We are currently looking for an Intruder Watch Co-ordinator and a Programme Organiser. Neither would take up huge amounts of your time but both are important in their own way. Why not think about it, and then let a member of council know?

One last thought, when we go to the Federal Convention in April we shall be returning the set of posters that we borrowed last year. This is only fair as there are only two sets to be shared amongst all the Divisions. These posters were used at our displays at the GPO, West Lakes Mall, and Morphettville and created quite a bit of comment. Unfortunately they are not suitable for copying and we wondered if there is anyone amongst the membership who is, or knows, a graphic artist or a photographer, who would be willing to help us achieve a set of posters of our own — costs to be negotiated, naturally.

DIARY DATES

3rd April — Journal Folding and Collation Night (listen to Broadcast for confirmation).
13th-15th April — Clubs' Convention at O'Sullivan's Beach.

1st May, Tuesday — WIA AGM (note change of date) 8.00 PM at the BGB. AR

TEST EQUIPMENT

Melbourne's largest range of secondhand:

Hewlett Packard

Tektronix

Marceni

Solartron

Bountoon

BWD

Bruel & Kjaer

Oscilloscopes, sig gens, spectrum analysers, multi meters. Wide range of valves, coaxial connectors and test accessories. Repairs and service to all makes and models.

DATON ELECTRONICS

**20 Cahill St., Bendenong,
793 3998**



VK2 MINI BULLETIN

Jeff Pages, VK2BYY
VK2 MINI BULLETIN EDITOR
PO Box 1066, Parramatta, NSW 2150

ANNUAL GENERAL MEETING

The Annual General Meeting of the NSW Division of the WIA was held on 31st March. Because of the magazine's lead time, a full report on the meeting won't appear until the June edition, however details of the awards presented at the meeting were decided well before the meeting and can be given now. First prize of \$200 for the best technical article from VK2 in Amateur Radio went to Colin MacKinnon VK2DYM for his article "A Two by Five Eighth Wavelength Vertical for Six Metres" and his series on "Modern Military Surplus Equipment". Second prize of \$75 was a tie between Ray Wells VK2BVO (now VK2TV) for "A Different Dipole" and Guy Fletcher VK2BBF for "Another Useful Delta-Loop Antenna".

First prize in the homebrew competition for a completely home designed and built project went to Adrian Van Der Byl VK2EDB for his adaptive keyer. First prize in the "homebuilt from a published design" section went to Peter Stuart VK2BEU for his RTTY modem, with second prize going to Vicky Marsden VK2EVM for her power supply. Adrian and Peter received cash prizes of \$75, trophies and a \$25 open order on the Division, while Vicky received a Highly Commended Merit Certificate and a \$25 open order on the Division.

Merit Certificates were awarded to Aub Topp VK2AXT for the establishment of the Divisional library at Parramatta and his continued work in collating and indexing the collection, to Roger Henley VK2ZIG for his work in re-establishing the Dural facilities, and to Stan Dogger VK2KSD, Peter Naish VK2BPN and Glen Molloy VK2AGM for their many years of service on the broadcast team.

JANUARY COUNCIL MEETING

The Divisional Council met on 20th January, 1984. The Annual Accounts and Directors'

Statement were adopted for circulation to members, and twenty three applications for membership were accepted. Two agenda items were put forward by Federal Councillor Stephen Pall VK2PS, namely that "Federal Executive apply to the Board of Directors of the Confederation of Australian Sport to be admitted as an Associate Member", and that "The WIA organise an Annual Contest limited to CW operation only". The Dural Committee Annual Report was adopted and approval was given for the purchase of a filing cabinet for the Dural station documentation.

FEBRUARY COUNCIL MEETING

The Divisional Council met on 10th February, 1984. It was resolved to adopt the internal audit of WICEN accounts to 31st December, 1983, conducted by the Divisional Treasurer David Thompson VK2BDT. Stephen Pall VK2PS reported that building approval had been received for the alterations to the downstairs room for the tenants at Amateur Radio House, and that the lease was being processed by the solicitors. Twenty six new membership applications were accepted. Federal Councillor Stephen Pall VK2PS presented a report on various Federal matters, and Tim Mills VK2ZTM submitted a brief resume of discussions at the RTTY Standards meeting held at Amateur Radio House on 8th February.

CONFERENCE OF CLUBS

The Tenth Conference of Clubs will be held at Amateur Radio House, 109 Wigram Street, Parramatta, over the weekend of the 14th and 15th April. Any interested member of the Division is welcome to attend as a spectator. As well as items submitted for discussion by the clubs, the agenda items for the WIA Federal Convention will be discussed to assist our representatives in determining the position of this Division on the various items.

SUB COMMITTEES

This Division currently has three sub committees, namely WICEN, the Education Service and the Dural Committee. The election of WICEN office bearers is handled internally by that organisation, subject to ratification by Council. If you wish to volunteer your services to assist the Education Service in producing their excellent educational material contact Ken Hargreaves VK2AKH or the Divisional Office. Volunteers for the Dural Committee, which is responsible for the maintenance and development of the Dural facilities and grounds, should advise the Divisional Office.

If you would like to join the team of broadcast announcers and engineers then either contact the Broadcast Officer, who is normally at Dural during the morning broadcasts, or the Divisional Office. Like many things, what you get out of the Institute is determined largely by what you put into it, so if you didn't nominate for Council why not give one of the sub committees a try.

FIREWORKS NIGHT

The Dural fireworks display is set down for Saturday, 2nd June. The Dural Committee met in late February (about a week after this was written) to formulate the details, and these will be given in next month's Mini-Bulletin and on the broadcasts. This is a night for the whole family and should not be missed, so make a note in your diaries now.

By the time this goes to press a new Council will hopefully have been elected (assuming that there were enough nominations). Although I still have one more Mini-Bulletin to write in my present term as Editor, I would like to take this opportunity of wishing the incoming Council a successful and uncontroversial twelve months.

AR



VK3 WIA NOTES

Jim Linton, VK3PC
DIVISIONAL PRESIDENT
VK3 DIVISION

AWARDS FOR AR CONTRIBUTIONS

The Divisional Council has decided to make annual awards for the best three contributions to Amateur Radio magazine from members of this division.

The member chosen as making the best contribution will be awarded the Kinnear Trophy and \$50 at the Annual General Meeting, second placegetter receives \$30 and the third \$20.

Council felt it most appropriate to use the Kinnear Trophy for this purpose — because life member Harry Kinnear was the first AR magazine editor (see story in the 50th birthday edition last October).

The new awards reflect the strong support the Victorian Division gives to the magazine.

All members are potential sources of material — whether a technical article, feature story, photograph, human interest piece, or even an idea on something you think should appear.

Contact the editor, PO Box 300, Caulfield South, Vic 3162, you will be helping the Institute maintain the high standard of its journal — who knows your contribution could be a winner.

RTTY WORKSHOP

Want to know what a Siemens M100 teleprinter has behind its keys? Well enrol in the RTTY workshop! This will be held at the Wireless Institute Centre, Saturday 14th April, 9 AM to 5 PM with a break for lunch.

The operation and maintenance of the popular M100 will be explained with a machine being completely stripped down.

Having trouble with your own machine? Bring it along and the experts will find the fault.

Cost for the workshop is \$5 per head — but enrolments are limited.

GADSDEN TROPHY

The 1984 winner of this VK3 trophy for technical achievement is Ken Palliser VK3GJ for his on-going development work of the Melbourne RTTY repeater VK3R7Y.

Ken was also co-winner of the 1983 Ron Wilkinson Achievement Award issued last month by the WIA Federal Executive (see AR page 38).

NOVICE REVISION WEEKEND

Candidates for the Novice theory exam next month are advised of a Novice theory revision weekend held in Melbourne on 5th-6th May.

A team of instructors will go through the theory syllabus and a trial exam is also held.

Attendance is required on both the Saturday and Sunday for about eight hours with a lunch break — enrolments should be made soon.

VOLUNTEERISM DROUGHT???

This Division relies on volunteers — but sadly some activities and services to members are not possible due to a drought of volunteerism.

Those already serving the Institute, including Councillors, Zone Committee members, the Wireless Institute Centre team, Victorian Technical Advisory Committee — and numerous others (forgive me for not naming everyone) who devote time to help the WIA.

Some Vic Div Councillors and Zone Committee members are doing several jobs due to a lack of suitable volunteers — they feel obligated when seeing important activities not being done.

Vacancies exist for a Book Officer to oversee the book sales service, Science Museum Station Officer (plus radio amateurs to be rostered at VK3AOM), National Parks

Award Manager to publicise and issue the award, and a Membership Co-ordinator to service new members needs, plan ways of attracting members, and keep statistical records on the progress of Divisional membership.

Position of AR Liaison Officer is also vacant — this involves writing/initiating copy for these VK3 Notes, meeting copy deadlines, and help/encourage the membership generally to supply information to AR magazine.

The holder of this position should be a self-starter with some skill in writing, having an ability to ferret out newsworthy items from Institute sources, and a commitment to communicate the activities of the Institute through the pages of this publication.

SUNDAY MORNING BROADCAST REVIEW

For the last eighteen months, the Victorian Division Council has expressed an increased concern, in the part that the Sunday morning broadcast plays in divisional matters. One of the consequences has been an allocation of funds, for the express purpose of developing the facilities available from and at VK3BWL.

Over the past few months a number of changes have already been implemented, with the successful commencement of 6 m FM test transmissions, and the purchase of three new tape recorders for the origination of news, and the recording of the broadcast.

Recordings produced on Sunday mornings will shortly see the commencement of Tuesday night rebroadcasts, initially in a test format, on 3.635 MHz ± 15 kHz, at 7.15 PM standard time.

Expected during the year is a new audio console that will solve some of the audio quality and RFI problems suffered in the studio. The console will also provide additional control flexibility in the studio, and increased professionalism on presentation will result.

These matters and other directions were discussed at the annual meeting of the broadcast committee, held near Broadford, on Saturday the 18th of February. Most of the announcers were present, as well as four of the five HF callback operators. (We all wish Ron Kelly's wife a speedy recovery.)

Operators and announcers met, some for the first time, and discussed the current difficulties encountered in the broadcast and the callbacks. Examination of the proposed improvements and changes in the broadcast saw some ideas scrapped as impractical, but many incentives will be seen.

The broadcast committee would like to express its appreciation to Ric and Sue Hill for their hospitality and to those members of the division who provide feedback and support to the broadcast committee. Constructive criticism is always welcome through the broadcast box, PO Box 308, Cheltenham 3192.

AR

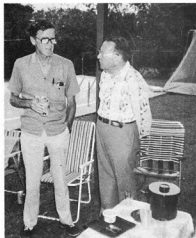


VK4 WIA NOTES

Bud Pounsett, VK4QY
Box 638, GPO, Brisbane, Qld 4001



Back in December, Councillors got together for a social meeting at the home of Guy, VK4ZXZ. Dave, VK4DT (left) and Harold, VK4HB, cheffed while Roger VK4CD and Ken, VK4KD (right) supervised. Roger from Townsville was a welcome guest.



While the cooking was progressing, Barry, VK4BIK (left) and VK4 Division Secretary, Theo, VK4MU swapped DX notes?

TEN METRE BEACON

A new 10 metre beacon is now operational in Australia. It is located at Townsville and will provide indications of propagation to northern Australia not previously available.

Townsville Amateur Radio Club established this beacon and are anxious to receive reports. The frequency is 28.270 MHz, power

is 10 watts and running a 24 hour schedule. The callsign is VK4RTL. You can call in on the Townsville Clubs net on Sunday evenings on 3.605 MHz at 7.30 PM (0930 UTC) with reports on this beacon.

SLOW MORSE FROM QUEENSLAND

The VK4 Division is now providing regular slow Morse transmissions. Townsville Amateur Radio Club is co-ordinating the programme. It can be heard most evenings on 3.535 MHz at 7.30 PM EAST (0930 UTC). Several clubs up and down the Queensland coast are participating. These are VK4WIT, Townsville; VK4WIM, Mackay; VK4RC, Redcliffe; VK4WIR, Rockhampton and VK4WIL, Brisbane.

SUFFIXES TO VK4 CALLSIGNS

Several blocks of callsign suffixes have been allocated on a distinct basis in Queens-

land. These are as follows:

| | | |
|--------------------------------------|--------------|--------------|
| FULL | VK4FAA — FZZ | AA-EZ |
| LIMITED | VK4TAA — TZZ | FA-JZ |
| NOVICE | VK4MAA — MZZ | KA-OZ |
| COMBINED | VK4JAA — JZZ | PA-TZ |
| The district break-up is as follows: | | UA-ZZ |
| BUNDABERG | | |
| CAIRNS | | |
| MACKAY | | |
| ROCKHAMPTON | | |
| TOWNSVILLE | | |

AMATEUR RADIO DOES IT AGAIN

Des, VK4KDW, is very glad to be an amateur. A few weeks ago, Des received a telephone call from his wife saying that she was very ill and did not know where she was.

Betty was out in her car somewhere in the Gold Coast area and had stopped to make the phone call.

Des put out a call on the Gold Coast

repeater and soon a team of amateurs were combing a wide area of the Gold Coast and its rugged hinterland. Ken, VK4KD, the State WICEN Co-ordinator, was out with a WICEN team. It was not long before Ken found the vehicle on a side road and called Des to make sure it was the right one. Des was mobile himself at this time near Burleigh Heads.

Charlie, VK4UQ, at Mt Tamborine alerted the police and ambulance who were quickly on the scene. Des was able to inform the ambulance officers of Betty's medical history and they soon had her at Southport Hospital where Des arrived soon after.

After a short stay in hospital, Betty has now fully recovered. Des and Betty wish to thank all those who took part. Again amateurs have shown how quickly they can become organised and how effective amateur radio can be in an emergency.

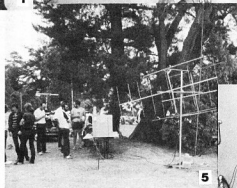
AR



WA BULLETIN



R. R. is Here!!



Radio Rally Held at Parkerville — November '83



1 Commercial Exhibit. 2 VK6WCY operated by VK6NEB and VK6NCW. 3 Ex PA0 group enjoy the Radio Rally. 4 L to R — Olive, XYL of VK6WT, VK6WT, VK6YF and VK6EB. 5 Mobile Oscar Tracking Station. 6 Christine, XYL of VK6NLZ selling books to Lance VK6NCW. 7 WICEN display. 8 What do we do with it now? seems to be the question. Hugh VK6FS donates the HIE generator to WICEN. L to R — VK6JK, VK6FS, VK6ZGM and VK6DY. 9 VK6NE's trailer load of "trash & treasure" for sale.



LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.



LETTER TO THE PRESIDENT

Dear Bruce,

As one of a group of concerned amateurs who have been monitoring and acting against maritime mobile pirates for a number of years may I congratulate you and the WIA Executive for comments in your Christmas message.

While the activities of the maritime "parasites" and the sales of amateur band transceivers to them by unscrupulous dealers is a serious matter there is an item of a far more serious nature which should concern all genuine amateurs.

We have, within the ranks of our own fraternity, a minority who could best be described as a "fifth column", these individuals are actively supporting maritime "parasite" nets, continually breaching the regulations by communicating with known pirates, openly abusing, on the air, any amateur who, in the normal friendly tradition of our service, advises them that they are communicating with an unlicensed station.

Any maritime mobile "traffic net" which includes known pirates should be shut down and any Australian amateurs who communicate with them should be dealt with under the regulations.

Our experience is that, when emergencies occur on these "parasite" nets the "net controllers" sit around helplessly "flapping their hands" in a panic or generally doing the wrong thing until any action to save these maritime pirates has to be taken over by other amateurs with specialist emergency training as has been demonstrated in the past.

It should be noted that another net which talks to MM pirates is also being conducted on 21.160 MHz at 2300 UTC.

While some concerned amateurs feel that action by the WIA may have come rather late we should, however, continue to alert all amateurs to the dangers confronting us otherwise our brands will degenerate into a state resembling that which exists on 27 MHz.

73
Ted Gabriel VK4YG
3 Corkill Street
Freshwater 4870
AR

FUSES ARE PROTECTIVE DEVICES

I recently had a contact with a VK3 station who, on being told I was using an FT7, asked if I was aware of any protective circuitry in this unit.

It seemed that a friend of his in a country town had connected his FT7 unit to a battery and, in so doing, had unfortunately reversed the battery connections.

Here comes the "sad bit". When the fuse had blown and there was no immediate replacement available and, lacking advice to the contrary, the owner had used a "piece of wire" (size or current carrying capacity not stated) as a "replacement".

After consulting my copy of the FT7 drawing and noting a diode as the first connection on the line, I sought confirmation and was advised that this diode was indeed the protective circuitry.

The owner's action necessitated me passing on the sad tidings that it was most likely the resultant damage could prove to be very expensive.

I am now informed that it was necessary to replace the two final transistors, drive and pre-amp transistors and an audio IC at a total cost of some \$165.

The moral behind all this is "if a fuse blows, endeavour to find out why" and do not, under any circumstances, use a "piece of wire" of an unknown

current rating" as a replacement for the fuse.

Incidentally, when the unit was opened up, the protective diode was found to be in two pieces. Need I say more?

The owner has, unfortunately, had to learn this the "hard way".

May we all be again warned of the possibilities of such an unfortunate mishap.

Tom Laidler, VK5TL
18 Albion Avenue
Glandore, 5037
AR

ORARI

May I refer to the letter in December "AR" by Gordon Dowse VK2AGE (p. 75) describing his visit to South Sulawesi, Indonesia — YB8 land.

Gordon mentioned ORARI, the national amateur society in Indonesia but I would like to clarify his statement concerning ORARI membership in IARU. ORARI is in fact a member of IARU but not of IARU Region III Association. However, due to both mail and personal contact, particularly by Jumbo Godfrey ZL1HV (a Director of IARU Region III), ORARI officials have recently advised that their society intends joining the Association sometime this year.

I can confirm Gordon's remarks about ORARI riding the crest of a boom interest in amateur radio. Total membership about seven years ago was around 10 000 transmitting members — currently it is around 40 000 with around 10 000 candidates sitting for the last quarterly examination. With a pass rate of around 25 percent that means something like 2500 people become amateurs EVERY QUARTER. Another way of looking at that figure is to say 10 000 new amateurs join every year. I cannot say what the attrition rate is but believe the net growth per annum is quite substantial.

One problem the WIA has that ORARI does not have is percentage of amateurs that are members. In Indonesia, an amateur must belong to ORARI to be an amateur, ie 100 percent membership.

For the record, and referring back to IARU Region III Association, WIA was a founding member and was in fact instrumental in the Association being formed in 1968 coincident with the 32nd Federal Convention.

May I conclude by congratulating VK2AGE on his initiative in visiting amateurs in South Sulawesi. The overseas "eyeball QSO" is a logical extension of the 20 (or 15 or 10) metre DX QSO and really puts into practice that much touted phrase "international friendship". There is a great need for such visiting.

Fraternat 73.
David Rindin, 9V1IR/VK3QV
Chairman of Directors
IARU Region III Association
PO Box 14
Pasin Penang,
Singapore 9111
Republic of Singapore

*Reference WIA Book Volume 1 Page 11, Page 64 and Page XV.

AR

EXAM PAPER TEST

I tested myself by doing the AOCIP paper in the January issue. The result was 84%, which, with a little revision, could probably have been over 90%. However, I took the opportunity of testing the often stated view that, with luck, any non-technical person could pass the test.

I asked the XYL to sit the test. As her technical knowledge of radio is nil she did not even bother to

read the questions but just filled in her selection on a piece of numbered paper. She got 18% right. We then put the letters in a hat and picked one for each question. This completely random selection gave 20% right. My grandson then arrived (aged 15) and he did the paper, first without reading it and then after reading each question. The first time he got 26% and the second 28%.

At last then, a few figures instead of hypothesis. I am aware that the test was not scientifically devised or conducted and is not conclusive. However, it does seem to indicate that a result obtained by guessing or selection at random will very roughly reflect the four to one chance of selecting the correct answer from those given. 73

Richard Barnes, VK2BTM
Railway Cottage
Gribbans
NSW 2584
AR

REF: 'WICEN NEWS' JAN 1984

Following an excellent series of articles in 'WICEN NEWS' on message writing and handling and also stressing the importance of standardised training and procedure, a report by Sam Voron VK2BVS, on the SET 1982-83 exercises has been published in this column.

This report is a jumbled collection of confused and impractical nonsense in which the author seeks to introduce a foreign, non compatible, non standard system of emergency communications.

To any amateur operator with a minimum of communications training it is obvious that, in the event of an emergency requiring communications between several countries that this would be carried out on a Government to Government level, using diplomatic, armed services and professional radio channels.

The idea that a fragmented, untrained and undisciplined group which includes people not conversant with normal communications procedures should handle traffic of this nature is laughably ridiculous.

Amateur radio, if required to assist, would be, at the most, confined to WICEN operators with the necessary expertise to handle the situation and bulk traffic would, most likely, be handled on RTTY.

A non compatible, non standard third party traffic system is not acceptable to emergency services.

Any amateurs or other groups who genuinely wish to assist in emergency communications should join WICEN or the SES and be correctly trained in the standard system.

Of interest is the dictionary definition of COMPATIBLE, capable of orderly, efficient integration with other elements in a system.

73
Ted Gabriel VK4YG
3 Corkill Street
Freshwater 4370

Editor's Note:

This letter has been shortened.

AR

TWO METRES FOR NOVICES?

May I be permitted to comment through "Letters to the Editor" column. Listening to on air comments regarding, what I consider to be a precedent, much has been said about availability of 2 metres for Novice Licensees.

It is somewhat disconcerting to think that a

person with no previous study or knowledge may legally purchase a good quality UHF transceiver and operate first for the payment of a Citizens Band Licence fee.

I am not acquainted with any proposed moves by WIA in the regard of 2 metres for Novices but looking at the number of Novices in the Call Book I feel sure a large number of Licensees would welcome its availability.

I can also hear some amateurs quoting the often said and printed "if he wants 2 metres let him upgrade", but I also suggest that some people have very valid reasons that can be given for not taking higher and more comprehensive examinations.

In my own case I shall not quote further but to say I was one of the fortunate ones who had the benefit of gracious and efficient tests at my home for which I am eternally grateful.

To me 2 metres could be of tremendous assistance in emergency situations. I would be most interested to learn if other Novices have similar views.

Thank you WIA for the opportunity to voice my views through your columns.

I remain,
Yours faithfully,
Manuel Murphy, VK3PCF
13 McCulloch Street
Bairnsdale 3875

AR

STRONG PROTEST

I wish to protest most strongly regarding the personal bias and inaccurate reporting in your DX pages "How's DX" in the February issue of AR.

The two headings involved were "Pulping" and "Kermadec Island".

The Kermadec Island is made out in the name of J Smith of Norfolk Island. He obtained this because of his track record on Heard Island yet NZ operators have done their best to prevent the Kermadec trip from happening. That you DX writer could write such an inaccurate item and have it published amazes me and as far as I am concerned you have lost all credibility with it.

As far as "Pulping" is concerned — a non WIA member should not receive QSLs via the bureau. If I lived at a DX location I could not afford to pay for all the hundreds of QSLs demanded and I would look for the sender to cover the costs of his receiving a card. I feel there is a very strong personal feeling in this article and that this sort of feeling should never be published in your magazine.

I am most concerned that personal feeling should be allowed to control the article concerned. I cannot believe your other articles if this can happen.

Yours faithfully
John Saunders, VK2EJ
8 Toni Crescent
Ryde, NSW

Editors Note:

The source of the Kermadec information was supplied by the DX Editor of the NZART publication "Break In" and the information on the paragraph "Pulping" was gained from the Federal QSL Manager.

IARU member societies are asked to accept cards for amateurs whether they are a member of the society or not and it is the responsibility of the recipient to collect these cards or alternatively make arrangements for their disposal.

AR

DISCRIMINATION

Why do the rules of the John Moyle National Field Day discriminate against limited licence holders by giving bonus points for CW to CW contacts?

Isn't the fact that CW operators are free to use the HF bands sufficient to give them an advantage over limited licencees?

Why is it necessary to prop up CW operators twice over?

Is it because non-CW operators are so much better than the others that it was felt necessary to handicap them or is it because, in spite of the

protestations to the contrary which have been cropping up lately, the CW mode is so decrepit that intensive care is necessary in order to save it.

Whatever the case, this blatant discrimination is unsporting and unAustralian and must be dropped even if that means doing it retrospectively.

Gordon McDonald, VK2ZAB
59 Highway Road
Berowra Heights, NSW 2082

Editor's Note:

Contest Rules are the responsibility of the Federal Contest Manager. The author of this letter has indicated that he has written also to the Federal Contest Manager.

AR

REPORTING OF DEFECTS IN POPULAR AMATEUR EQUIPMENT

It appears that worthwhile technical information for many amateurs would be obtained if the cause of defects in amateur equipment was reported in AR. I am not suggesting that every defect is worthy of mention but these days, with increased complexity of yesterday's simple circuitry any assistance in finding the cause of the problem is appreciated, especially those people where the "box" has to travel long distances to be serviced.

Some while ago, one aspect of this subject was the input by some service organisations on defects found and the contents of manufacturer's service bulletins. I would like to see SBS from all the major manufacturers of amateur equipment reproduced or at least listed and priced.

To supplement this technical information, I am suggesting that amateurs be encouraged to forward, for publication, details of the defect (and remedy) experienced with equipment of major manufacturers. Many defects in electronic equipment are of a recurring nature and I suggest that it would be of assistance to many to read of faults and causes in current equipment.

Some persons may not want their names/callsigns mentioned and I don't think that that would be necessary.

Here is one to start the "Service Department" for the TS520S.

Symptoms: In "Tune" position, no RF indication on any band below and including 7 MHz. In "CW" position, no drive on 3.5 MHz and below but a little drive on 7 MHz (approx 10% of normal). No ALC indications on 7 MHz and below. Operation on 14 MHz and above on CW and SSB appear quite normal.

Cause: Found sprocket drive for variable capacitor VC2 loose on shaft. Capacitor in minimum capacity position. Capacitor not being actuated by drive control. Grub screws in sprocket drive tightened.

R N Torrington, VK3TJ
4 Thistle Street
South Pascoe Vale, Vic 3044

AR

NOTE

Letters to the Editor should be concise and to the point, preferably typed double spaced but legible hand-written copy is acceptable — but please write on every second line. Also please leave a 2 cm margin on the left-hand side.

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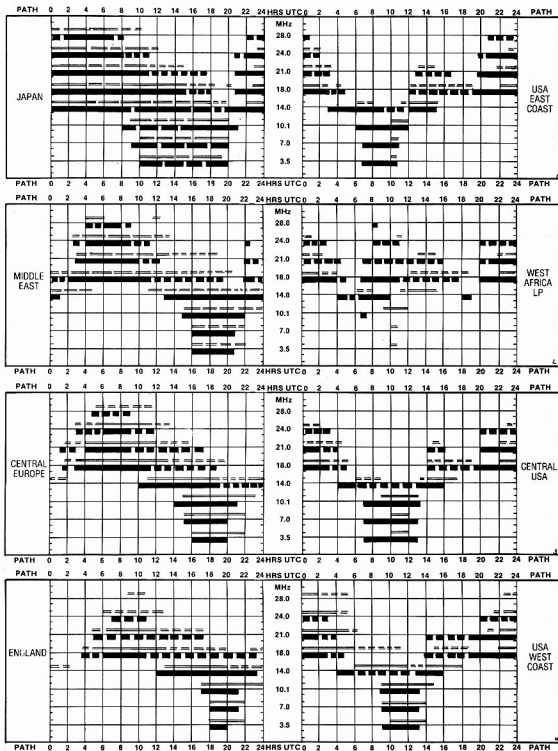
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IONOSPHERIC PREDICTIONS

Len Poynter VK3BYE



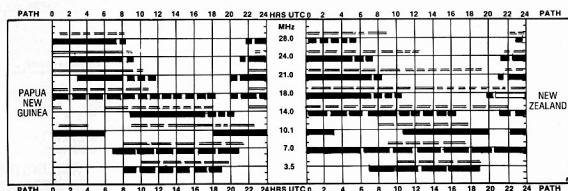
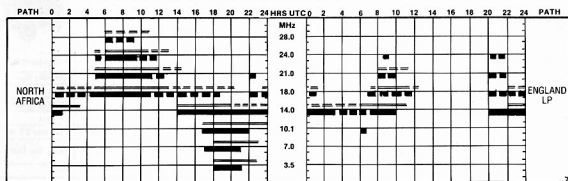
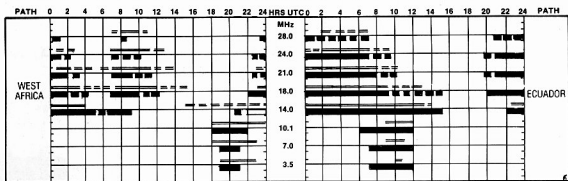
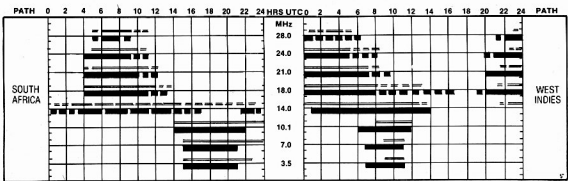
LEGEND

— From West Australia

— From East Australia



Better than 50% of the month, but not every day



Predictions courtesy Department of Science and Environment IPS Sydney. All times in UTC.

  Less than 50% of the month
 PATHS — Unless otherwise indicated (ie LP = Long Path) all paths are Short Path.

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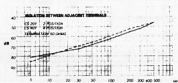


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Silent Keys

It is with deep regret we record the passing of—

MR BRIAN JOHN HARPER VK7HR

Obituaries

BRIAN JOHN HARPER VK7HR

Friends in the amateur ranks will be saddened to hear of the sudden passing of Brian on the 6th February, 1984, at the age of 57.

Brian joined the amateur ranks in December 1980, but radio and communications had been part of his life since 1942.

He joined the PMG Department as a messenger boy, progressing to technician in training then senior technician Darwin. He then gained the opportunity to undertake tertiary studies. In 1961 he completed a Bachelor of Technology in Electronic Engineering at Adelaide University.

In 1962 he moved with his family to Hobart to take up the position of Communications Installation and Maintenance Engineer with the Hydro Electric Commission. At the time of his death he was head of the Protection and Test Division at the HEC.

Once having joined the amateur ranks he took to this hobby with the usual enthusiasm he displayed for both work and relaxation. In three years he recorded over 1500 QSOs in sixty countries. During travels overseas he had many eyeball QSOs with amateur friends. In Japan, in particular, he enjoyed the chance to see at close quarters the life and customs of his JA friends, promoting in his small way understanding and friendship across nations in a manner appropriate to amateur radio.

A loving family man, Brian leaves a wife, two sons and their families.

Prepared by Geoff Harper VK1NBZ AR

KEL PHILLIPS VK4OD

Died 22nd December, 1983. Kelvin Phillips was born in Melbourne on 14th April, 1904. His interest in Radio began in his teens with home built crystal sets. This continued until he went as a jackeroo to Cambridge Downs near Richmond in Queensland about 1925.

A highlight for him was the reception of a broadcast by Professor Sir Edgeworth David from Antarctica, which was quite a feat on his home built set. When I first knew Kel he was manager of "Blackadder Mains", a large grazing property at Longwarry Vic. His call was VK3AEP.

Kel was a keen CW operator and his first transceiver was home built. It is a matter of interest that he received a Broadcast Station Operators Certificate of Proficiency in 1959. During the disastrous Hobart fires he remained on watch and relayed many messages from Tasmania. In 1971 he and Norah retired to Buderim Queensland where his call became VK4OD. Kel was a member of the Radio Old Timers Club of Australia and his Certificate, No 224 carries a sticker showing that he was an amateur for over 50 years.

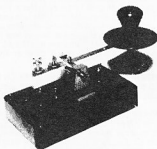
Our sympathy is extended to his wife Norah and their daughter Sarah and her husband Robin.

Kelth VK3AKB AR

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NOTICE

All copy for inclusion in June 1984 Amateur Radio must arrive at Box 300, Caulfield South, 3162 no later than midday 26th April. Please remember this immediately follows the Easter, Anzac holidays so allow ample time for mail deliveries.

HAMADS

PLEASE NOTE: If you are advertising items FOR SALE and WANTED please write on separate sheets, including ALL details, eg Name, Address, on both. Please write copy for your Hamad as clearly as possible, preferably typed.

* Please insert STD code with phone numbers when you advertise.

• Eight lines free to all WIA members. \$9 per 10 words minimum for non-members.

• Copy in typescript please or in block letters double spaced to PO Box 300, Caulfield South 3162.

• Repeats may be charged at full rates.

• QTHR means address is correct as set out in the WIA current Call Book.

Ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being resold for merchandising purposes.

TRADE HAMADS

Conditions for commercial advertising are as follows: The rate is \$15 for four lines, plus \$2 per line (or part thereof) minimum charge \$15 pre-payable. Copy is required by the deadline as stated below indexes on page 1.

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PACKET RADIO using the software approach, by Robert Richardson. Data Transmission at 1200 Baud with error correction. Volume 1 is a general overview with a detailed look at the Vancouver protocol. Vol 11 (in preparation), will cover AX25 protocol. Programmes in 280 assembler. Disks available for Tandy Mod 1 & 111. Price... \$28 + \$3 P&P. Disks \$15 each. Northern Digital, PO Box 333, Charlestown, NSW 2230. Phone (049) 43 8961.

WANTED — NSW

CIRCUIT DIAGRAMS for the following rigs. Clarion model JC-201E, Shakespear model GBS-1500, Bobcat type no 23-10. Will pay for copies. Bob VK2VYM, QTHR. Ph: (063) 41 4217.

continued over page

SERVICE MANUAL for Murphy receivers B40, B41, B62. Can photocopy & return. Command receivers 3-6 MHz & 6-9 MHz preferably not modified. HF, VHF, UHF tx's & rx's. Radar tx's & rx's. Valves type 1625. 12 V DC power supply for Drake TR3 txcvr. Bob VK2ZHS. QTHR. Ph: (02) 59 5390.

SYNTHESISED MOBILE TRANSCIVER for 2 m. Will accept working or faulty units. Price negotiable depending on condition. Please write VK2BCY. Box 33. Edgeworth. NSW. 2285.

WANTED — VIC

CCT for Hammarlund HC-10 AM/CW/SSB receiving adapter. CCT & PCB layout for Johnson Viking 325-D unit. Sockets for 813, 6CW4, 4CX250B valves. Socket for 2AP1-A CRU tube. Valve tester (eg AV01). Eric VK3BXA. QTHR. Ph: (057) 65 2384.

WANTED — QLD

CIRCUIT or details of old 26 V Air Force receiver R2A/ARR3. Also valves 211, 211C, 1620, 1622. Cash or can swap trans valves. VK4EF. QTHR. Ph: (07) 38 1803.

WANTED — SA

CIRCUIT DIAGRAM for valve txcvr-Vintenn MTR-12-T. Any information would be appreciated. VK5EP. QTHR. Ph: (082) 96 3799 AH.

HF TRANSCIVER suitable for mobile operation. Details to Chris VK5MC. QTHR. Ph: (087) 35 9014.

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TRIO TX-509 HF tx & match JR 599 rx, capable of operating cross mode, cross band, even duplex. Dual VFO. CW filter. AM, SSB, CW transceiver & FM receiver. EC. \$650.00. VK1GW. QTHR. Ph: (062) 88 2596.

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KENWOOD TS-430S 0-30 MHz txcvr, with Kenwood MB-40 mobile bracket, SP-40 mobile spkr. All brand new in cartons. \$1200.00. Matching Kenwood PS-30 AC power supply. \$195.00. Write Box 505, Bondi Junction, NSW. 2022 or Ph: (02) 327 2981.

TELEPRINTER Model 15 in working order \$10. Siemens M-10 teleprinter S80. Tape distributor, working \$10. Many parts for Model 15, brushes, platen etc Ph: (042) 96 4595.

YAESU FT-20BR 2 m FM h/held txcvr in orig box with h/book & controls. LCD display, 10 mems, scanning 5 or 10 kHz, keyboard entry from 143.500 to 148.495 MHz 2.5 W. Incl spare batt pack and Yaesu charger. Warranty remaining on all equipment till Oct 84. \$320. Ph: (02) 524 8498.

YAESU FT-820 6 m AM/CW/SSB txcvr. Ex cond. 50-54 MHz \$275.00. YAESU FT-720RVH 2 m FM syn txcvr as new. 25 W. P/S275 or swaps for 70 cm SSB gear. Steve VK2ZSC. Ph: (02) 674 2104 after 6.30 PM EST or weekends.

FOR SALE — VIC

DRAKE 2B Q MUX RX. Spare valves. Instr book. Perfect cond. Plus 10A supply (faulty transformer) Royce SWR/PWR meter. Lesson power mic & plenty coax, wire, connectors etc. All for \$200. Brian Young. Post Office Daylesford. Vic 3460.

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NATIONAL (USA) NCX-5 TRANSCIVER. 3.5-30 MHz (5 bands). CW h/book. SS pwr sup for 180 W input. mic & mobile mt \$200. Spare tubes inc 3 sets finals \$50. Aust version of NCXA pwr sup (unfished) \$50. Orig packing. Yaesu FT-7. 3 mlt condx. CW, mic, h/book & mobile mt. Orig Pk. \$375.00. Syd VK3AC. QTHR. Ph: (059) 89 5995.

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ANSWERS NOVICE THEORY SAMPLE PAPER MAY 1982

| | | | | |
|------|------|------|------|------|
| 1 d | 11 d | 21 d | 31 c | 41 b |
| 2 c | 12 b | 22 b | 32 c | 42 b |
| 3 c | 13 c | 23 a | 33 a | 43 b |
| 4 c | 14 d | 24 d | 34 d | 44 d |
| 5 a | 15 d | 25 d | 35 d | 45 d |
| 6 d | 16 c | 26 a | 36 a | 46 b |
| 7 c | 17 d | 27 d | 37 c | 47 c |
| 8 b | 18 b | 28 c | 38 b | 48 a |
| 9 b | 19 b | 29 b | 39 b | 49 d |
| 10 a | 20 c | 30 b | 40 d | 50 a |

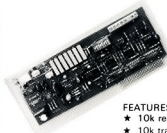
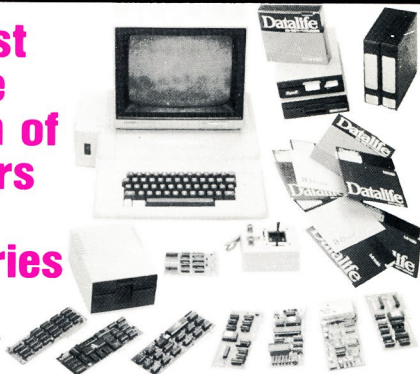
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\$625



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\$410